

DIET FOR CHILDREN (AND ADULTS)

LULU HUNT PETERS, M.D.

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DIET FOR CHILDREN

(AND ADULTS)

AND

THE KALORIE KIDS

BY
LULU HUNT PETERS, A.B., M.D.
Author of

Diet and Health, With Key to the Calories
Formerly Instructor on Infant Feeding, Los Angeles County and
Clara Barton Hospitals, Los Angeles Medical Department,
University of California, Los Angeles; Pediatrician,
Los Angeles County Hospital; Attending Physician,
Florence Crittendon Home,
Los Angeles, California



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TO
ALICE AND DAWSON
MY SISTER'S CHILDREN

THE MEANEST KIDS
THAT EVER LIVED
(AT TIMES)
BUT
LORD! HOW I LOVE 'EM!

FOREWORD

This little book is written as a response to the numerous—exceedingly numerous—requests I have had from mothers since I began my newspaper syndicated health feature, “Diet and Health.”

It is not written for dietitians, nurses, librarians, physicians, nor social workers, though needless to say we have not the least objections to their using it! But it is to the mothers that it is addressed—to the mothers, who know very little about the principles of nutrition, many who perhaps do not know the difference between a protein and a ptomain, a carbohydrate and a carbuncle—to the mothers who are anxious to learn, and who have requested me to teach them.

So, here we are, mothers, in a little book just for you, written by me, at your request. And, mothers, right away let me tell you something that is very important and helpful to you. *The proper diet for your growing children is practically the foundation diet for yourself and the other adult members of your family.*

Yes, it has been conclusively demonstrated that the best foods for the normal health and growth in children are also the best foods for the maintenance of health in the adult. You can see how this will simplify matters for you, for eating the right things yourself is the surest and best way of getting your children to eat them. You know how imitative they are. It is for this reason that I have taken for the title of the book “Diet for Children,” and have tacked on, in parenthesis, “and Adults.”

However, we have to give special thought to this growing business. You and father have to eat to maintain your proper weight and normal health. Your children have to eat not only for health, but for the enormous work of increasing their weight from fifteen to twenty-five times what they weighed at birth.

I have given, to the best of my ability, the best ideas of the scientific workers on nutrition; not fads, not hearsay, but things we know.

Aside from my professors in the University of California, and the New York and Harvard Post Graduate Colleges, I am indebted to all my colleagues and to others who have written on the subject of nutrition; and I am indebted to Dr. Belle Wood-Comstock, of Los Angeles, and Dr. W. H. O. Hoffman, pediatrician of Chicago, for many helpful conferences. I thank them all.

Hoping that I have been able to present the subject in a simple non-technical manner that you, the busy home-makers, who perhaps have had no scientific training, can understand, and that you will like it and will be repaid in the better health and happiness of yourself and your children, is the wish that is nearest to my heart right now.

You will find that I have brought out different points on many subjects under different headings, and many times I have repeated important points in order to more fully impress them upon you, for by repetition we remember better.

The first chapters are on the principles of the foods. Don't try to remember all the technical points, but do read the chapters; for you will then be able to understand more fully the reasons for the things I have advised, and you will find that the main points will stick.

We all know this. If we know the reason for doing

FOREWORD

a certain thing and we agree with it, we are very much more apt to do the thing we should and we are not nearly so apt to stop doing it.

Of course I judge from your letters that if I say you should do a thing you are going to take it as gospel truth. (It makes me scared when I remember how much confidence you are showing in me.) But I do not want you to do that, mothers. I want you to know my reasons for advising any certain procedure, so that instead of doing a thing because I say do it, you are going to do it because of the reasons for doing it; and you will remember these reasons long after you forget that it was from my writings that you got them.

You must know the elements of the science of nutrition, and it has to be pretty solid reading. When I signed with my publishers for this book they said they hoped I would put in as much fun as I did in "Diet and Health, with Key to the Calories," my book on and for fat people. But you know, mothers, that couldn't be done.

Any one can have fun with a subject on fat people, because fat people have been the source of jokes from time immemorial, even though it really is no joke to be fat. (I know! It's past history, thank Allah!) But the subject of the nutrition of children, especially the half-starving ones, does not lend itself to any funny treatment. Don't skip the chapters dealing with the different food elements. Wade through them womanfully.

Atta, Mothers!

L. H. P.

New York, 1923.

ERRATA SLIP

Pages 23, 29, etc.—“zerophthalmia” should read “xerophthalmia.”

Page 29—“Dr. McCarison” should read “Dr. McCarrison.”

Page 209—“gutter” should read “guttur.”

Page 214—“Dr. Alfred H. Hess” should read “Dr. Alfred F. Hess.”

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PART I

DIET FOR CHILDREN

CHAPTER I

ELEMENTS NEEDED BY THE SYSTEM

“THE making of a well-balanced and well-organized dietary requires several hours a day of careful calculating.” No, no, not my words, mothers! I got them from a book on child welfare. It is a most excellent book, but I disagree with the author on this point.

Can you see yourself finding time to spend several hours a day calculating your menus? I can't. Nor do I believe it is necessary. I think if you know the general principles of diet you will be able to feed your family a well-balanced and well-organized dietary without anywhere near several hours a day of careful calculating.

But, mothers (I am going to address you as “mothers” throughout, for it seems more as though I were talking directly to you. However, I include fathers, grandmothers, aunts and any other persons who are interested enough in some child to be reading this)—but, mothers, you must know those general principles of diet. So let's jump right into them and get it over with.

You know that an improper diet for the children (and adults) for any length of time causes a slowing down of physical and mental growth, an instability of the nervous system, a lowered resistance to infection, a lowered power to recuperate after disease and a shortening of life.

**What You
Already Know**

You know now as never before that a correct diet is one of the biggest factors—we can really say THE biggest factor—in the maintenance of health of the individual, and the maintenance of health in the individual means the maintenance of health in the race.

But the race does not concern you right now. What you are interested in right now is what you can do specifically in this eating line to improve and keep improved *the* boy and *the* girl in your own particular family; and you know that if you do your share in this particular job, the race will take care of itself. So let us get down to this particular job in hand.

What You
Must Do

You must supply food for:

- | | | |
|-----------------------|---|-----------------------|
| 1. Proper Functioning | } | This spells
HEALTH |
| 2. Growth and Repair | | |
| 3. Energy and Heat | | |

All these are closely interwoven and dependent on each other and we only separate them for purposes of study.

If you don't furnish food for proper functioning, you won't have growth and repair. If you don't have growth and repair, you won't have energy. If you don't have energy, growth and repair, you won't have proper functioning. If you don't have all three of them, you won't have HEALTH.

Now, before we get down to the particular foods and the specific directions, I think we had better have a little general knowledge and some definitions so that I won't have to be making explanations of the terms we use as I go along.

The
Elements

So let us begin right with the elements that the human body is composed of and which we furnish

to our bodies in the foods we eat, as we cannot take them directly from the air and soil. Plant cells alone have this ability. They have the power to convert the light and heat of the sun into the chemical energy that can combine with the elements of the air and soil and convert them into living cells. Because, as I have said, we cannot do this, we have to take the elements secondhand through the plants, and, if we eat animal foods (and it is very difficult to get all of the elements we need unless we do eat some animal foods, especially milk), then we take them thirdhand.

I will give you a table of the most important of these elements, with their percentages.

It is not necessary for you to remember the full list, but if for any reason you might want to, you can remember them by the mnemonic which I have placed before the names. It is one I worked out when I was a student and had to memorize them. The initial letter of each word gives the initial letter of the element as listed in the order of amounts. "O. C. Here. Now Come, Pete! Please stop such chaff! Many indignant Indians fidget. 'Sdeath!" That doesn't make much sense, but it will serve its purpose.

The only elements I want you to remember are The Picnic
the ones represented by the initials of Now, Come, Pete and Indignant Indians—nitrogen, calcium, potassium, iron and iodine. Juggling the initials of these elements around, and if you use calcium a second time—and that is all right to do because we do have to give more than one thought to the calcium—you get the word "Picnic." Remember the PICNIC. I'll explain why later.

THE ELEMENTARY COMPOSITION OF THE BODY

From "Sherman's Chemistry of Food and Nutrition,"
(Courtesy of Macmillan Company).

		PER CENT
O.	Oxygen, about	65
C.	Carbon, about	18
Here.	Hydrogen, about	10
Now	Nitrogen, about	3
Come	Calcium, about	2
Pete!	Phosphorus, about	1
Please	Potassium, about	0.35
Stop	Sulphur, about	0.25
Such	Sodium, about	0.15
Chaff!	Chlorine, about	0.15
Many	Magnesium, about	0.05
Indignant	Iron, about	0.004
Indians	Iodine *	Very minute quantities
Fidget.	Fluorine	Very minute quantities
'Sdeath!	Silicon	Very minute quantities

By means of these elements furnished by the maternal blood, the human embryo of much less than a grain grows to a seven-pound baby. Then by means of the same elements furnished mostly by some mother's milk—human, we hope—it grows to a twenty-pound baby. Then by means of those elements furnished by every edible animal and plant that roams the field it grows perhaps to a 250-pound baby. (Some baby! Now he has to reduce and get rid of some of his elements.)

* The "e" is left off in the newer spelling.

CHAPTER II

THE FOOD SEXTET

THE elements which the plants take from the sun, air and soil are converted by them into six great classes of foodstuffs, which we will call "The Food Sextet." They are: *fats*, *carbohydrates*, *proteins*, *essential salts* (sometimes called mineral salts, or mineral elements or ash), *vitamins* and *water*. These are intimately mixed in different proportions in each plant; the different proportions making the characteristic flavor of the plant. By the term plants we are including vegetables, fruits, nuts: anything that grows from the soil.

It is interesting to know that the large plants we can see depend upon countless microscopic plants which we cannot see without the aid of powerful magnifying glasses. These microscopic plants are known as "bacteria" (germs and microbes mean the same). They set the elements free from the dead plants and animal material in the soil, by causing what we know broadly as decay, and some of them furnish acids which cause the rock fragments to crumble and give up their elements. After the bacteria liberate the elements, plants can feed upon them. The knowledge of the bacteriology of the soil is used by farmers when they rotate their crops, use different kinds of fertilizers, etc. This makes what is known as scientific farming; courses are given in college on the subject.

**You Will
Be Glad to
Know This**

You will be glad to know about these germs. Per-

haps you had thought that all germs were disease-producing. In reality, there are not more than a few dozen of these known disease-producing microscopic plants—we might call them the weeds—among the bacteria, and there are thousands of the good little microscopic plants which are of benefit to mankind aside from those of the soil.

**The Human
Body Machine**

You must know a little something about this Food Sextet and what each member supplies to the body.

We often liken the human body to a machine, especially to a steam engine, because it has to be given fuel in order to produce its power. Sherman has pointed out that a gas engine is a better comparison, because the energy comes from the chemical reaction of the fuel, rather than from the heat itself, in both the gas engine and the body.

Comparing the human machine to a gasoline engine, he says we can think of the fats, proteins, and carbohydrates as corresponding to the fuel; the proteins and some of the mineral elements corresponding to the materials of which the machine is made; other mineral elements corresponding to the lubricant; and the vitamins corresponding to the ignition sparks without which the engine cannot run, no matter how perfect the other supplies are. That's a clever and comprehensive comparison. Try to remember it.

Sherman didn't speak about water, but we all know that we have to have the water for all of these things to work in, for there is no chemical reaction without water.

We must get the correct proportions and sufficient amounts of each of The Food Sextet. Otherwise this

human living machine is not going to be able to function properly. Remember that these food elements are intimately mixed in the foods *as they come from nature*—man, not nature, refining some of them to their concentrated states. (Bad business for the human machine in many cases because refining robs them of vitamins and mineral elements.)

When we get the correct and sufficient proportions of each member of The Food Sextet, then we will get what we call a balanced diet. I'll go into that later. Just now I'm going to give you a synopsis of The Food Sextet, and then I shall give you a little more in detail about each member before I come to more specific directions.

1. PROTEIN FOODS. The "meat" element in food. For growth and repair. Meat and fish, milk, cheese, egg whites, most nuts and legumes, are the highest protein foods. MILK, the most valuable of these. The Food
Sextet

2. CARBOHYDRATES. Energy foods. Starches and sugars. These are furnished largely in the cereals, breads, sweets and vegetables, especially the legumes (beans, peas, lentils) and tubers (potatoes, beets, turnips, etc.). Other vegetables and fruits also contain carbohydrates.

3. FATS. Growth and Energy foods. Cream, butter, egg yolks, all oils and animal fats.

4. VITAMINS. The "live" elements of food, "ignition sparks." They have much to do with regulating growth and normal function; and the prevention of certain diseases. Fresh vegetables and fruits; bran and germ of grains; milk and egg yolks, and the glandular organs of animals furnish the vitamins.

5. MINERAL SALTS. For the bones, teeth, and for general functioning. Give a little special thought to phos-

phorus, iron, calcium, nitrogen, iodine and calcium again. That's our "Picnic." Foods containing the largest amounts same as the vitamins.

6. WATER. The body is over $\frac{2}{3}$ water. Must furnish sufficient.

We will go a little more in detail on our Food Sextet in the next chapter.

CHAPTER III

PROTEINS

WE can think of proteins as the living substance of plants and animals. Proteins are sometimes defined as that element of the food which is used to build and repair living tissue. It is a much more complicated substance than are the carbohydrates and fats.

In order to have this living substance, protein, in the body to make up its tissues, we must eat protein—because *protein has to be made from protein*. Fat can be built from fat or carbohydrates; but muscles, bones and all of the tissues must have protein or else they can neither build nor repair themselves.

White of egg is practically pure protein and water; lean meat and fish, casein of milk, gluten of wheat, are examples of other high protein foods.

Proteins consist, as do carbohydrates and fats, of **Nitrogen** carbon, hydrogen and oxygen; but in protein there are also the elements nitrogen and sulphur, and, in some proteins, phosphorus, iron and other minerals. But it is *nitrogen* which is the element of protein that is characteristic and which we cannot get in any other food except protein. Living tissues must have nitrogen, therefore the importance of protein foods.

When proteins are digested or broken down chemically it is found that they consist of a number of simpler substances we call *amino acids*. There are forty of these acids that are known in chemis-

**Complete and
Incomplete
Proteins**

try, but only eighteen which build themselves into the body tissues. Therefore we call these eighteen amino acids "building stones." Proteins that contain these eighteen building stones we call *complete proteins*; and we must have them, else we won't be complete. They are furnished mostly by the animal kingdom. Most of the foods from the vegetable kingdom do not contain all these building stones, so their proteins we call *incomplete*.

Children will not grow normally nor maintain their health if these incomplete proteins are the only proteins furnished in their diets. (Adults will not maintain their health, either, if incomplete proteins are used exclusively.) However, this does not mean that the proteins of plant life are not very valuable foods, it simply means that they must not be depended upon for all of the protein needed.

We believe that at least two-thirds of the proteins required by children for their growth and repair should be from the complete or animal protein list.

**Milk:
A Complete
Protein Food**

Because milk is the only food that is intended by nature to support the higher animal life in its infancy, it must of necessity contain a sufficient amount of the best form of protein to build animal tissue. The protein in seeds is intended by nature for the building of plants. So while seed protein is good, it is incomplete for animal life.

A child must have milk—and good, clean milk; for milk is just as good a food for bacteria as it is for the child. If the milk should happen to be contaminated with tuberculosis or typhoid or scarlet fever or other diseases, then your child would be liable to infection from them.

Cereals have incomplete proteins. That is why milk with its complete protein should be taken with them. Your growing child should have at least a pint and a half—and if undernourished or very active, a quart—of milk a day, to be sure of this valuable supply of this complete protein. If he gets this amount of milk, a large proportion of his needs for complete protein and a wonderful supply of calcium will be furnished. All of this milk need not be taken in the form of drinks; some may be taken in the form of simple custards, soups or sauces, and cheese.

**Cereals
Incomplete**

Milk is so important a part of our children's diet that I am going to have a complete chapter on it later.

Other foods besides milk that have complete proteins are *meat*—especially the meat of glandular organs such as liver, kidneys, sweetbread and brain—most *nuts*, and *eggs*. The *soy bean*, a Chinese bean that is being used in this country now, also has a complete protein. The proteins of legumes—peas, beans and lentils—are incomplete proteins and should not be depended upon for the chief supply on account of this. The peanut, although listed as a legume, has a complete protein. While the proteins of potatoes and rice are not complete, still they are of an excellent quality.

**Other
Complete
Proteins**

Gelatin is an animal protein, but it is incomplete; flavored with fruit juices, and made into simple puddings, it is a good basis for energy foods.

Adults need protein simply to repair their tissues, their physical growth having ceased. Your children must have protein not only for repair, but for growth. When we realize that the period of de-

**The Amount
of Protein
Necessary**

velopment or growth covers nearly one-fourth of a century, and that at maturity there is approximately twenty times the birth weight and twenty times the amount of protein in the body that there was at birth, we can realize that children must have a large amount of protein for this business of growing.

Let me emphasize again the importance of complete proteins. About two-thirds of the proteins in the diet, and especially in the diet of children, should be complete proteins. The reason for this is not only for their complete supply of building properties, but because the vegetable proteins are combined with large amounts of carbohydrates, and depending upon too much carbohydrate-combined protein might make the diet too bulky and over-high in total energy food.

Protein Needs of Children

It is estimated that one-half of the protein the child needs goes into new tissue—new child! So you can see that children will need relatively more protein than adults. For instance, if we take 10 per cent of the total diet as the average amount of protein needed by an adult, then at least 15 per cent should be allowed for the child.

It is only by studies of groups of healthy, normal, well-developed children, presumably getting the right food in right proportions, that we can get data on the amount of protein and other food elements needed by children. The reports of Holt, in such a study of one hundred children ranging in age from one to eighteen years, agreed with the reports of other investigators. *Holt found that at the age of one year the protein taken averaged seven calories per pound. This gradually diminished to about four and one-half calories when the*

child was six years of age, and remained about this value or slightly below to the end of growth. He thinks this amount of protein may be regarded at present as the best amount for the growing child.

The average adult, according to the Chittenden standard—which by many is considered too low—needs approximately *one and one-half calories of protein per pound of body weight*. So you can see that the above standard for children after their first year is more than twice as much per pound as is needed by adults.

Adult Needs

Human mother's milk does not contain a high proportion of protein. This fact is sometimes stated to advance the theory that a low protein allowance is indicated for children. However, the reason the nursing babies get along on this low amount of protein is because the protein of mother's milk is the very highest form of complete protein and can all be utilized by the child. It has twice the amount that cow's milk has of lactalbumen—a protein that contains the most important growth factors, and which we have learned from experience babies must have in full amounts or they will not grow normally, nor be well. Therefore, we have to give babies twice or even three times the amount of protein when they are artificially fed, so that they shall have their full amount of this growth protein, lactalbumen. One of the reasons for the failure of the condensed milk formulas when they are used exclusively is because of their low protein content as well as because of their low fat and too high sugar content.

**Human
Mother's
Milk
Supermilk**

**Danger in
Excess Protein**

Of course there is danger of excess protein in children's diets, as there is in the diets of adults.

Excess protein tends to cause putrefaction with its resultant absorption of toxins or poisons. However, in the growing child, the danger is more on the side of too little protein in its diet rather than too much, because very little meat should be given a child, while with the adult it is usually the excess meat in the diet that causes the excess protein.

Later, I will give you protein values of the principle foods in the Table of 100-Calorie Portions of Foods. This will help you to judge whether your child is getting sufficient protein in its diet. For instance, if he is six years old and weighs 43 pounds, he should have, computing at $4\frac{1}{2}$ calories per pound, 190 calories a day of protein, at least.

I'm going to tell you about calories later so you will easily understand them. Don't worry about them now. I will also tell you how you can compute the protein, approximately, without bothering about the calories.

CHAPTER IV

CARBOHYDRATES AND FATS

CARBOHYDRATES

CARBOHYDRATES are the *starches*, *sugars*, and *cellulose*. Cellulose is the woody fiber of plants—we might call it the bones of the plant. Most of the cellulose is not digested, so sometimes it is classed by itself. It is necessary in the diet to furnish the bulk which seems essential for the normal daily evacuation of the bowels.

Chemically, the carbohydrates are composed of oxygen, carbon and hydrogen, the first three elements on our list of elements needed by the system. The hydrogen and the oxygen are combined as they are in water, so we can think of the carbohydrates as being composed of water and carbon. The name carbo-hydrate (hydrate; water) is based on this fact. The different proportions of water and carbon combined make the different kinds of starches, different kinds of sugars, and different kinds of fruit acids—fruit acids are also partly carbohydrates.

The carbohydrates are supplied almost exclusively by the vegetable kingdom, furnishing a large per cent of the food element in *fruits*, *grains* and *vegetables*. The biggest exception is the *milk sugar* in milk.

Carbohydrates and fats, and to a limited extent, the proteins, furnish the fuel that produces the energy and heat needs of the body.

It is considered that at least three-fifths of our food for our energy and heat should be in the carbohydrate group. It has been proved that a certain

**Amount
Needed**

amount of carbohydrates is necessary to burn the fats properly in the body. *Reduction menus cutting out all carbohydrates are dangerous.*

FATS

We get fats from both animal and vegetable sources. Fats are built up, just as are the carbohydrates, from carbon, hydrogen and oxygen, only in different proportions and combinations. They contain more carbon and hydrogen than do the carbohydrates; therefore, they are a more concentrated food and will supply more energy than the other foods. In fact, fats produce two and a quarter times the energy that an equal weight of protein and carbohydrates do.

Each animal and plant produces a fat that is characteristic of itself. You know this from the looks and taste of the different fats. Pork fat tastes different from mutton fat, etc. It might be interesting to you to know that when an animal eats large amounts of a certain type of fat exclusively, that type of fat is found in his tissues as well as his own type of fat. (Beware of how much pork you eat! For this as well as for other reasons.)

Combined Fat The animal body makes its fat from carbohydrates and fats, and to a degree from proteins. Fats are very necessary in the diet, but many of us take altogether too much free fat in our diets. It is better to take most of the fats in the form of *combined fat*—that is, fat as it is combined in *nuts, olives, egg yolks, and cream*—than it is to have so much free fat. However, the free fat in butter is very valuable because it has a large per cent of the valuable fat-soluble vita-

mins which are preventive of certain eye diseases and rickets. (We'll have more on vitamins later.) (Cream is not classed as a free fat. It is an emulsified fat, but becomes free when it is churned into butter.)

In the normal digestion—in the intestines—fats are converted first into what we call *fatty acids*. Then these are broken down to carbon dioxide (CO_2) and water (H_2O). This chemical breaking down sets free heat and energy. These final or “end” products, carbon dioxide and water, are eliminated through the lungs, the skin and the kidneys.

Now if we eat more fat than can be fully oxidized or broken down to carbon dioxide and water, one of two things may happen. First, the fat elements may recombine into fat. This fat tucks itself away in the tissues. This may be desirable or undesirable, depending upon how much is already tucked away. Or, second, this may happen: the excess fat may break down to the fatty acid stage and not be able to go any farther. This upsets the system in general and the skin will be more susceptible to eczema, pimples, boils, etc., and the mucous membranes tend to become catarrhal.

**Friendly Fat
Fraternity,
Take Notice**

Fried foods should be eaten in great moderation because some of these fatty acids are formed and because the coating of fat deposited by frying slows down the digestion of the foods so treated. In some cases they may retard digestion so much that more or less stagnation is produced, with its resulting putrefaction and auto-intoxication. *Fried foods certainly should be avoided in the diets of children*, especially the younger children.

You know how offensive and strong rancid fat is.

This is because the fat is decomposed into some of its fatty acids. This gives you an idea of fatty acids and the importance of not giving the system more fats than it can handle.

**Excess
Fat and
Adolescence**

During adolescence—that period of life from puberty (the beginning of adult life) to early maturity—we have some evidence acquired through animal experimentation that much free fat with its excess fatty acid formation may be a factor in upsetting the thyroid gland, thus helping to produce goiter. I'll tell you more about goiters later.

Fat Needed

It is considered that from 25 to 30 per cent of the diet of adults should be from fats. This does not mean, of course, 25 to 30 per cent free fat.

Holt advises that children should have 35 per cent fat. Other authorities are not fully in accord with him here. We might take the middle ground. Until further work is done in carefully checking up the diets of normal children, we cannot make positive statements regarding fat.

However, inasmuch as fat as an energy food is two and a quarter times greater than carbohydrates, it seems that a fairly liberal allowance of the combined fats, and good, fresh butter (for its vitamins as well as its energy) should be allowed children, so they will not have to overeat of the more bulky foods for their energy needs. We know this for sure: unless children get sufficient energy foods, their weight and growth will suffer.

If nature were only a little more perfect so that instead of stopping the growth activities, she would automatically make a child stop his play activities when the

energy supply was exhausted, we would not have to be so particular to supply children's energy needs. However, an excess of free fats must be avoided for the reasons I have given.

CHAPTER V

VITAMINS

VITAMINS are certain live elements in food whose chemical composition has not yet been determined, but whose presence in the diet is absolutely necessary for growth, proper functioning and maintenance of health. "Ignition sparks," Sherman has called them. They used to be called "vitamines," because Funk, one of the original investigators in these food factors, thought they were amines, a protein product, and he called them "vitamines" to indicate how vital they were. It is not thought now that they are amines, but the name has become so well known that it has been thought best to keep it with the final "e" omitted, leaving the word "vitamin," which does not give the implication that they are amines.

Not Fads

Let me assure you, mothers, vitamins are not a fad nor an obsession, even though they have been put into a little disrepute by the wild advertising of some commercial concerns which have been putting up for sale, in concentrated forms, what they call vitamins. While scientific research has shown that drug-store vitamins are valueless, it is showing all the time that the vitamins of certain foods are absolutely necessary for health.

Some Main Points About Vitamins

1. With the exception of a few preserved foods, vitamins are present only in fresh foods. They are produced by the vegetable kingdom, and some

animal foods possess them because the animals have consumed the vitamin-bearing foods from the vegetable kingdom.

2. The animal body does not store vitamins very long, perhaps not longer than a few weeks in man.

3. Vitamins are essential to all of the tissues of the body, especially the nerve tissues.

4. Vitamins are essential for:

- (a) Growth
- (b) Reproduction and Lactation
- (c) Proper Functioning
- (d) Disease Resistance

If the diet is deficient in vitamins, certain "deficiency" diseases may result. Scurvy, beriberi—a severe nervous and intestinal disorder—and xerophthalmia—a severe eye inflammation—have been known to develop. Other diseases besides these are being proved to be at least partially deficiency diseases. Pellagra, a terrible disease of the poor of the South, so common that it is a national problem, and rickets, a disease of babies and young children and young animals, are included in this class. Tuberculosis may possibly be in this class, also. That is, the T.B. germ is much more liable to infect those whose diet is deficient in vitamins.

In fact, almost any disease will have a better field to flourish in when the diet is deficient in vitamins. But we must not forget that the same thing can happen when the diet is deficient in other vital elements as well as in vitamins.

5. There are three vitamins which all of the research workers agree on at this writing. They are all necessary

for growth, reproduction and lactation, and proper functioning, as well as for the prevention of disease.

They are called:

- (1.) Anti-ophthalmic, or Fat Soluble A, Vitamin.
- (2.) Anti-neuritic, or Water Soluble B, Vitamin.
- (3) Anti-scorbutic, or Water Soluble C, Vitamin.

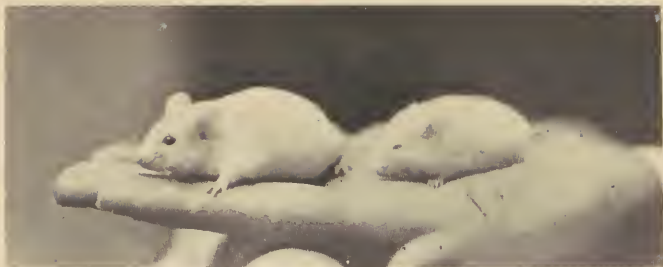
Research work is now being done on cod-liver oil and some other foods, which may prove that they have a specific vitamin, which will be called Anti-rachitic, or Vitamin D.

The Calories Move Over

Up to the time of the vitamin investigations it had been thought that if the proteins, carbohydrates, fats and mineral salts were in right proportions in the diet, and there were enough calories of them consumed, nutrition would be theoretically correct.

We had known that we must have some fresh foods to prevent scurvy, and that we must not live on a diet of polished rice or we would get the terrible nerve disease, beriberi, but we had not given these things their proper significance. We did not know why certain foods were incomplete and would apparently cause disease, or what were the properties of other foods which made them of sufficient value to cure these diseases.

Now we know that there are other food factors besides proteins, carbohydrates, fats and mineral salts, and other values to food aside from the energy or caloric values, protein and mineral salt values. But this does not mean in the least that we have discarded our knowl-



THESE WHITE MICE WERE OF THE SAME LITTER. THE VIG-
CROUS BRIGHT-EYED HEALTHY ONE RECEIVED RATIONS COMPLETE
IN VITAMINS AND MINERAL ELEMENTS. THE OTHER DID NOT.

edge that we had before. Not at all! These food factors have simply moved over a little and have made room for the vitamins. It may be that further investigations will disclose some other food factors, and then the vitamins will have to edge over a little to make room for them.

Occasionally you hear it said that, now the vitamins have been discovered, calories have been discarded. But this is not true. To discard our knowledge of calories, for instance, because we have discovered the vitamins, would be similar to discarding a vital part of our automobile when we discovered the car was not running right and found it necessary to add another part to make it go. That would be foolish, wouldn't it?

Now let me digress a bit and tell you a little about how foods are tested and diseases studied in the biological laboratories.

In the last fifteen years we have learned more about scientific nutrition than we did in a hundred years previous. The chief reason is because we have used the biological method of studying much more than formerly. The biological method means the study of the effects of foods on animals and man. The chemical laboratories have taught us a good deal, but they have their marked limitations.

**The Biological
Method**

It is a most interesting experience to visit a biological nutrition laboratory. The animals are usually caged and are given the most tender and zealous care. Accurate records are kept of the amounts and kinds of food given them and of every reaction that is brought about by these foods. The animals' activities and dispositions—in fact, everything they do—are recorded as carefully as a hospital patient's reactions would be.

**Mary
and Doug**

The research workers and the attendants become very fond of these animals and have their individual favorites, and they often given them pet names. In the Forsythe Dental Clinic in Boston, for instance, two beautiful little monkeys being fed to demonstrate the value of certain diets on teeth were called Mary and Doug.

When I was there Doug had begun to develop systemic disturbances, pyorrhea and tooth decay on a diet that was deficient in green stuffs and milk. His usual cheerfulness and friskiness were absent, and he was altogether in the dumps. Mary, who was receiving the same diet as Doug, with the addition of milk and greens, was her usual vivacious self, eyes bright and starry, teeth shiny white and perfect.

Dr. Howe's experiments at this laboratory have shown the effects of a deficient diet on the teeth and jawbones, not only on Doug, but upon numerous anonymous guinea pigs.

**The Rat in a
New Rôle**

The common rat is one of the great scourges of the world, both in transmitting plague and destroying foodstuffs, but a few rats have at last found a use: they are contributing a good deal to our knowledge of foods and disease. The rat, like man, is omnivorous—that is, it eats everything; its tissues, therefore, must need in general the same food elements that the human tissues do. It bears young when it is three months old and has five litters before it is fourteen months old. So the rat's diet also shows very soon its effects upon reproduction and the offspring.

Small animals, such as rats, mice, dogs, guinea pigs, and monkeys, are usually used in these experimental

laboratories because the trouble of preparing and the expense of food is very much less than it is for the larger animals. The chief reason, however, for their greater value for experimental purposes is that they grow and reach maturity and reproduce in a much shorter time than the larger animals, and the effects of their diet will show not only on themselves, but on their young, in a comparatively short time. Facts learned from these experiments can be very rapidly accumulated.

For a study of deficiency diseases—rickets, for instance—animals are given diets which will produce rickets in them. Different foods and other factors are then applied to find their worth in effecting a cure.

**To Study
Disease**

The tests that are used to find out the different properties of foods are, very briefly, as follows:

Food Testing

A certain food is given alone, and its effects noted over a certain period. Then to this food being tested, other foods will be added and their effects noted. For instance, it has been found that grains, even though they have all of the known elements, will not support growth, and finally, the animal fed on grains alone will die long before its time. Even the wheat grain, the most perfect grain, is a very imperfect food used alone.

All of the grains have been tested and it has been found that they all are deficient as a sole food. It is largely because their proteins are not complete. It has been discovered that a large part of the leafy part of the plants with their growing cells—the active part of the plant—must be included in the diet to supplement the deficiency in the seeds and the roots or tubers, which are the storage parts of a plant.

Protective Foods

McCollum probably has done as much if not more work in this line than any other investigator. Because he has found the very great importance of the *leafy vegetables* and *milk* to supply deficiencies of other foods, he has termed the milk and leafy vegetables "*Protective foods.*" The human intestinal tract is not large enough to take sufficient amounts of the green leafy foods alone to protect, so milk is added because it also supplies these deficiencies.

The dietary value of different fats is worked out by feeding animals on correct diets, except for the lack of fats. Then different fats are added and their effects noted. It was from the same sort of biological experimentation that we acquired our knowledge that proteins differ so markedly in their dietary properties, and that most vegetable proteins are incomplete.

The Anti- Ophthalmic, or Fat Soluble A, Vitamin

Now we will come back to the vitamins and talk a little on each of them.

It has been found that the vegetable fats and lard are very deficient except in energy or caloric value, and that not only does the eye disease, xerophthalmia, develop, but growth and reproduction are markedly affected in animals when these are the sole fats used in the diet. The growth and reproduction proceeds normally and the eye disease disappears when *butter, cod-liver oil or egg yolks* are added to their diets—thus proving that there is some food element in these last fats very necessary for these functions. Research workers have called this element the *anti-ophthalmic vitamin, or fat soluble A.*

They Were Pitiable!

A striking practical application of this knowledge was made in Rumania during the war. The

children there, as in other warring countries, were living on a very limited diet containing practically no milk or butter or green vegetables. Very many of the children were suffering from the severe eye infection, *zerophthalmia* (inflammation of the eyelids and eyeballs, sometimes going to complete blindness and death).

The American Red Cross secured for these children a cargo of cod-liver oil, a food exceedingly rich in fat soluble A, and the disease was checked and many lives saved. The children in Serbia and Albania suffered similarly. I know—I worked with them, with the American Red Cross.

Experiments have shown that this fat soluble A is also present in other foods, notably the *green-leaf plants*, especially spinach.

The chief source of this vitamin in butter and milk is primarily from the green vegetation, for less of it is found in winter milk and butter than in summer milk and butter. The nursing mother must have a liberal supply of vitamin A else the nursing baby won't get it. This applies to the other vitamins and the mineral elements also.

In the experiments to find out which foods would prevent beriberi, the terrible nerve inflammatory disease, it was found that the anti-neuritic foods not only prevent beriberi, but also have to do with normal reproduction and lactation and growth, the same as the anti-ophthalmic vitamin.

**Anti-neuritic,
or Water
Soluble B**

McCarison emphasizes that animals fed upon diets lacking in this vitamin, water soluble B, became sterile. It is well known that sterility is common in those who suffer from beriberi, the disease brought about by the lack of this vitamin. Of course the diet which brings

this one is also deficient in the anti-ophthalmic, or fat soluble A, the vitamin which is also an important factor in reproduction and lactation. *It is quite possible that many cases of abortions and sterility of unknown cause in the human family may be due to diets lacking in the vitamins.*

**Essential to
Proper
Nutrition**

A deficiency of vitamin B also causes a lack of appetite and a disorder of the organs of digestion and assimilation, so it is essential to normal nutrition at all ages.

The foods that are highest in the anti-neuritic vitamin, or water soluble B, are *tomatoes*, raw, canned, or dried; *spinach*, *cabbage*, *beans*, *yeast* and *yeast extracts*.

**Anti-scorbutic,
or Water
Soluble C**

It was discovered that the anti-scorbutic, or water soluble C, vitamin also had profound effects on reproduction and lactation. When pregnant animals were fed on diets producing scurvy, the young were born prematurely and died at birth. The anti-scorbutic vitamin also has to do with growth and development, for animals and babies fed on diets lacking them will have their growth and development arrested, as well as develop scurvy.

The foods that are highest in the anti-scorbutic vitamins are *lemon juice*, fresh or dried; *orange juice*; *raspberries*, fresh or dried; *tomatoes*, raw or canned; *raw cabbage* and *lettuce*.

Now you can see from what I have said that vitamins are not only necessary to prevent disease, but all of them are necessary to promote growth and to carry on the normal functions of life, including reproduction and lactation. Are the vitamins important? We'll say they are!



PIGEON SUFFERING FROM POLYNEURITIS FROM AN EXCLUSIVE
DIET OF WHITE BREAD.



SAME PIGEON, 9 HOURS LATER, AFTER RECEIVING WHEAT GERM
EXTRACT.

The vitamins are closely associated with the mineral elements in the foods. This is fortunate, for in getting the vitamins we will also get the mineral elements and they are just as important as the vitamins. That the vitamins are distinct factors and are not the minerals is proved by the fact that the minerals can be separated from the foods in pure form while the vitamins are killed. We have to think of the vitamins as the *live elements* in the foods.

**Vitamins
and Mineral
Elements**

When the body is deprived of vitamins for any length of time, the vitamin content of the nerves and all of the tissues is gradually lost and degenerative changes begin to take place. It is now thought that many half-ill people who live on the bread-meat-potato-sugar diet, which does not include a sufficient amount of the vitamins and mineral elements, may be suffering from latent scurvy and nerve disorders, due to this deficiency.

**Has Your
Child Latent
Scurvy?**

Most of the vitamins are affected and some are destroyed by the action of heat. The fat-soluble A is more resistant to heat than the others. Alkalies such as baking soda, and drying, also lessen and destroy some of them. The vitamins that are in solution of an acid, as in the tomato and the citrous fruits, are most stable, and tomato and orange juice, lemon and raspberries keep most of the vitamins even when dried or canned.

**How
Vitamins
Are Affected**

These foods have the anti-scorbutic and the anti-neuritic vitamins in high concentration.

Holt and others have shown that when starches and sweets are increased in the diet of children they will not thrive unless the vitamin-bearing

**Another
Candy
Menace**

foods are also increased. This may show that there is either an increased demand for the vitamins created by the starches and sugars or that they have some effect in destroying the vitamins. *It is probable that children and adults who have a large amount of cane sugar and candy and other sweets suffer from a vitamin deficiency as well as from the fermentation of these foods and the unbalancing of the diet.*

Because prolonged cooking does destroy the vitamins, vegetables should be cooked in as short a time as possible, in a tightly covered vessel, for the oxygen of the air helps to destroy the vitamins, too. If the vegetables are thoroughly masticated they are better for the teeth and the development of the jaws when firm rather than mushy.

The list of vegetables eaten raw should be extended. There is hardly a vegetable that is not delicious eaten raw, if it is grated or ground fine and served with an appropriate sauce. None of the vitamins and none of the minerals are lost when the vegetables are eaten in this manner. This does not mean that I subscribe to the raw food faddist's theory of eating no cooked foods.

Beets, parsnips, carrots, spinach, turnips, sweet potatoes and other vegetables that are not usually served raw can be served raw as well as cooked and they are delicious. If they are thoroughly masticated they can be given to any child who has all his teeth. They can be used singly or in combination. (Remember also that vegetables help to keep the normal alkalinity of the blood and lymph.)

Winter Vitamins

In the winter when the green vegetables and fresh fruits are not so available, the winter vegetables and fruits should be eaten more freely than they

are. With the larger consumption of the winter vegetables and fruits and whole milk, and some of the following foods which I will list, there need not be any deficiency of the vitamins during the winter. The yeast extracts on the market under various trade names—Savita, Mamite, Herbox, Vegex, etc.—are just as efficient as yeast for the anti-neuritic vitamins and they add a very delicious flavor to soups and sauces.

Dried spinach is rich in the anti-ophthalmic or Vitamin A, and the anti-neuritic or Vitamin B, and that can be secured during the winter months. Canned or dried tomatoes are rich in all the vitamins.

Sprouted legumes (beans, peas, lentils) and the grains furnish an appreciable amount of the anti-scorbutic vitamin (Vitamin C) and have been proved effective. Sprouted beans were used to help keep down scurvy in the Serbian Army during the war. The sprouts from soy beans are used by the Chinese in their chop suey.

**Have Some
Chop Suey**

Seeds can be sprouted in the following manner: Punch a hole in the bottom of a tin pan. Half fill the pan with thoroughly washed seeds, then fill the pan with water. Keep covered and set in a warm place where the water may drain away. Refill the pan two or three times a day to keep the seeds moist. Allow the sprouts to grow an inch or two and use in a salad, or cook very slightly.

Milk, butter, cream, egg yolk, dried spinach, canned and dried tomatoes will furnish the anti-ophthalmic or the Fat Soluble A. (Cod-liver oil is very much more concentrated in Vitamin A than any other food. This is very effective in many anemic disorders.)

Because the demand is not sufficient for whole-grain

cereals and flours, you may find it difficult to get these. However, they are so important for their vitamins and mineral salts, especially for the children, that it is worth while to get a home grinding mill. They can be purchased as low as ten dollars, I understand. A coffee grinder will do if you can't get a regular grain mill. Three or four families of your neighborhood could club together and get a larger and better one.

I am quite sure you appreciate now the value of the vitamins, for I think I have given you sufficient data. So here is a table of them. (The authorities on vitamins usually list the vitamin-bearing foods as "one plus," "two plus" and "three plus," to indicate their values in vitamins. I am giving you only those that are listed as "three plus"—highest—and "two plus"—next highest—in the book on the subject by Sherman and Smith.)

Among the vegetables in this list, notice how valuable tomatoes, cabbage and spinach are, either fresh, dried or canned. These we can have the year around.

VITAMIN TABLE

ANTI-OPHTHALMIC (Fat Soluble A) (May also be anti-rachitic)

Three Plus (Highest)	Butter, cream, cod-liver oil, milk (condensed, evaporated or whole dried), egg yolks, alfalfa, spinach (dried or fresh).
Two Plus (Next Highest)	Whole wheat, orange-peel oil, kidney, liver, tomatoes (raw, canned or dried), string beans, carrots, dandelion greens (fresh), lettuce, peas, Hubbard squash, sweet potatoes, cheese, eggs.

ANTI-NEURITIC (Water Soluble B)

Three Plus	Tomatoes (raw, canned or dried), alfalfa, beans, fresh cabbage, fresh spinach, yeast and yeast extract.
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Two Plus Whole grains, brains, kidney and liver, grapefruit, lemon juice, orange juice, cabbage (cooked, fresh and raw), carrots raw (cooked, one plus), cauliflower, dandelion greens, lettuce, onions, parsnips, peas, potatoes (white, raw and cooked), dried spinach, turnips, most nuts, milk (all forms), string beans, eggplant (fresh and dry), rutabaga.

ANTI-SCORBUTIC (Water Soluble C)

Three Plus Lemon and orange juice (fresh and dried), raspberries (fresh and dried), tomatoes (raw and canned), cabbage (fresh, raw), lettuce, cloudberry (fresh and canned).

Two Plus Sprouted grains and legumes, grapefruit, orange peel, dried tomatoes, cabbage (cooked), fresh carrots, raw onions, white potatoes (raw or boiled 15 minutes; longer cooking, one plus), milk (less than two plus).

Every day see that you and your children have a good supply of some of these foods from each list, and you will not suffer a vitamin deficiency. And if you include two or three glasses of milk, which is high in calcium and phosphorus, and a liberal amount of foods containing iron, these—with the other vitamin-bearing foods which you will choose from this list—will protect you against a mineral deficiency as well as a vitamin deficiency.

CHAPTER VI

MINERAL SALTS

I WILL give you a few general facts about all of the elements before we discuss our "PICNIC"—Phosphorus, Iron, Calcium, Nitrogen, Iodin and Calcium again. The reason we do not have to think particularly about the other elements is because they are supplied in the ordinary mixed diet in sufficient amounts, while these five elements are not always included in sufficient amounts for proper growth and health.

When tissues are burned and analyzed in the laboratory, some of their elements are given off in the form of gas and those that are not given off as gas are left in the form of ashes. These ashes we call mineral ash or mineral salt.

How Chemical Reactions Are Maintained

It is by the presence of some of these gaseous elements and those we call the mineral ash or salts that the chemical reactions of the body fluids and secretions are maintained, whether acid, alkaline or neutral. Some secretions are acid; for instance, the hydrochloric acid of the stomach. Some are alkaline; for instance, the bile. The blood is nearly neutral. (A secretion is something which the body secretes for its use. An excretion is something the body excretes or gets rid of, having no further use for it.) Some of these mineral salts are deposited in the different tissues as part of their structure. We will talk of that later.

You all know that alkalies are the opposite of acids. Sodium bicarbonate, or ordinary baking soda, is an example of an alkali. Acids and alkalies when joined together neutralize each other and the result is called a salt. They do not always join in equal proportions, and if the alkali elements are in the larger proportion, or are stronger, the salt is known as an alkaline salt. If the acid element is stronger, the salt is known as an acid salt. So we have three kinds of salts in chemistry—the neutral salt, the acid salt, and the alkaline or basic salt (alkalies are also known as bases).

The normal reaction of the blood and the fluid which bathes all the cells of the body (the lymph) is slightly alkaline, and probably never becomes actually acid in life. However, when it becomes less alkaline than normal, then a condition known as *Acidosis* results. Mineral salts must be taken in the foods eaten, in such a proportion that the blood and tissue fluids are kept normally slightly alkaline. Otherwise there is trouble.

Acidosis

I am going to talk about acidosis under Diet in Disease. Just now I have merely brought it up to show you one of the chief functions of the mineral salts.

We have already discussed nitrogen, the characteristic element in protein. Now we will talk about the other elements represented by our P-I-C-N-I-C.

PHOSPHORUS

We must give a little thought to phosphorus, for it has been shown that in our ordinary mixed diet we do not always get enough phosphorus. Phosphorus is just as necessary for the living cells as protein. It

has to do with the multiplication of the cells, and it is necessary in the bones and teeth, and the nervous and reproductive systems. It also helps to keep the system in its normal slightly alkaline state. Most of the insoluble phosphorus is in the bones. With the calcium it helps to give them hardness and solidity.

So—a little thought to the phosphorus, mothers. Luckily the milk which we are giving the children for their calcium and protein and vitamins also has a good supply of phosphorus. But in order to be sure they get enough phosphorus, let's give them an egg yolk every day, or at least two or three times a week. (They are high in iron and growth vitamins, too.) Babies can have these as early as the second month if rachitic. Later the children can have *cheese, peanuts, almonds, walnuts, lean beef, and baked beans, whole wheat, and oatmeal*. These foods are all high in the phosphorus-giving scale. See that you and the other adult members of your family get enough, too, mothers. It is important!

IODIN

We have long known the necessity of giving special thought to calcium and iron, but it is only in recent years that we have realized the importance of the element iodine. The study of the goiter problem has brought iodine's importance to the front.

It is known that simple goiters are due to a deficiency of iodine in the thyroid gland. I will discuss it again when I tell you more about the prevention of goiters.

Fortunately, ~~most~~ of the foods containing iodine are the foods that have iron and other needed elements and the vitamins.

The foods which have iodine in them in measurable

quantities are *sea fish, lettuce, beets, turnips, green peas, radishes, and tomatoes*. Carrots, parsley and potatoes do not contain as much as the others listed, but they do have some.

CALCIUM

If you soak a long, slender bone in a solution of hydrochloric acid for two or three days, it will bend so easily that you can tie a knot in it. The reason this bone can be so easily bent is because the calcium salts have been dissolved out of the bone by the acid.

Now that is all right for a bone that we are using for demonstration purposes, but it certainly is not all right to let the bones of our children get soft enough to tie knots in. This couldn't happen anyway, of course, but we don't want the children's bones to get even soft enough to bend.

How shall we prevent it? One way is by supplying enough calcium (common name, "lime") in their diets. So, mothers, you can see the importance of foods that will supply this important element, lime. There are other things that are necessary for the firmness of the bones, other minerals, vitamins, etc. We will speak of them later.

Calcium is not only necessary to give firmness and solidity to the bones and teeth, but it is also extremely important to the blood and to the normal activity of the heart.

In an extended series of investigations it was found that calcium has a good deal to do in keeping the other inorganic elements in the body in good behavior. It has such a favorable effect on iron that when there is a good supply of calcium present there is not

Some
Regulator

the same danger of having too small amounts of iron, for the calcium seems to make the iron that is present more easily absorbed.

Calcium constitutes three-fourths of the mineral content of the body. A child weighing 100 pounds totes three and one-third pounds of lime! A regular little hod-carrier he is. Ninety-nine per cent of this is in his bones and teeth.

Sherman has said that the ordinary mixed diets of the Americans and Europeans, at least in cities and towns, are probably more deficient in calcium than in any other mineral elements.

He Needs to Tuck It Away

While a sufficient amount of calcium is very necessary for adults, the rapidly growing child needs more in proportion to his weight than do adults—in fact, he needs three to four times as much (in proportion to his weight), because he needs to store it up as well as to use it in the system.

Because some of the salts are lost in cooking unless cooked very carefully, and because there are some losses in digestion, there should be a good surplus of calcium in the diet for a margin of safety. There is not much danger of getting too much, although in rare conditions this does happen.

A certain amount of calcium leaves the system every day, and that amount must be supplied daily. Now that you know how important calcium is, mothers, I am going to tell you right away something that will take the worry off your minds about supplying enough of it in your children's diet.

The Magic Food

Milk, mothers! Milk is the magic food. From our chapter on protein you know we can depend

upon it for its complete protein. It is high in phosphorus. Now see how it scores in calcium.

If your child drinks two and one-half glasses of good milk every day, you would not have to worry, even though he got no other food containing calcium, for two and one-half glasses every day will supply his entire need of this precious element. If you had to give the child enough round steak to furnish this daily supply of calcium, you would have to give him $12\frac{1}{2}$ pounds! If you had to give enough white bread, you would have to give him 100 slices!

These comparisons will show you how rich milk is in calcium. In fact, a quart of milk contains more calcium than a quart of clear, saturated solution of lime-water. Milk is so important that I will talk a whole chapter on it for you.

When nature alone is feeding the child, she sees that he gets calcium even before he is born. Some of you remember a book called "Tokology," that came out years ago. It expounded the idea that if foods containing lime were avoided by the expectant mother, the infant's head would be softer and more moldable and this would make childbirth easier. But did it work? No. Nature saw to it that the child got a good proportion by robbing the mother's bones and teeth.

**Nature a Wise
Dame (not
Infallible!)**

This shows the importance of sufficient lime in the diet of the pregnant woman, for herself and child too. (In fact, the frequent decay of the mother's teeth is due to this robbing of lime.) Then when the baby comes, nature intends it shall have its mother's milk, and mother's milk gives to the child more than three grains of lime daily.

Puppies fed on meat alone will have deformed bones;

but give them bones to gnaw, and they get their lime and develop normally. At the London Zoo at one time many of the lion cubs were deformed and dwarfed because they were fed only on meat. The authorities consulted a noted surgeon and upon his advice they began to give them bones and bone meal, and the lion pups ceased being deformed and dying prematurely.

Now, we can't feed children bones, but we can feed 'em something just as good. Don't forget the MILK, mothers.

Other foods especially rich in calcium are *cheese* (very high, for it is concentrated milk), *egg yolks* and *almonds*. The *fruits* and *vegetables* are also fairly rich in calcium. Cottage cheese is a most wholesome food and should be part of the children's diet rather than other cheeses. Don't forget the milk!

THE STORY OF IRON

The need of iron for the system is so important that nature does not take any chances, but sends baby animals that nurse (mammalia) into the world with a supply in their livers to last them until they are able to chew and so get the food that supplies it. This has been proved true of puppies, kittens, rabbits and children. Nature, apparently, gives babies this reserve in preference to supplying iron in their mother's milk, for milk is deficient in iron; although the small amount that is present is in a very valuable form.

Because little calf babies are able to nibble green grass very shortly after they are born, nature doesn't supply half so much iron in their milk as she supplies in human babies' milk. That is why babies artificially fed on cow's

milk have to have foods containing iron sooner than do breast-fed babies.

The chief function of iron is carried on in the blood. It is a part of hemoglobin, which is the chief constituent of the red-blood cells.

No iron—no blood—no life. Too little iron—too little blood—too little life. We must have iron, for without it the body cannot make the red-blood cells.

There are approximately 5,000,000 red-blood cells in a cubic millimeter of blood. A cubic millimeter is about the size of the head of an ordinary pin. In the whole body, then, you can imagine that the number of red-blood cells runs up into many trillions. Physiologists estimate that one red-blood cell lasts about six weeks, and that seven million new red-blood cells die every second of our lives. Now we have got to supply iron for this tremendous work of helping to make seven million red-blood cells every second. If we don't, we are going to suffer from anemia. In case it makes you tired to think of making seven million blood cells a second, think of making the tiny droplet of blood that the head of a pin could carry. That's work enough!

The word anemia is from "a"—*without*, and "emia"—*blood*. So, literally, it means without blood. You all know the symptoms of an anemic person. He is pale, tires very easily, is short of breath, lacks appetite; in fact, every vital function of the body is disabled.

The blood that comes to the lungs to discharge its load of waste in carbon dioxide (CO_2)—two molecules of oxygen lugging along a molecule of waste carbon (amounting to one-half pound a day)—gallantly takes on fresh oxygen in the lungs and starts its round again. It goes to every nook and cranny in the body, giving the cells the food

molecules which it has chemically worked over (oxidized) so they can be used by the system, and then, sturdily tackling the waste, it marches off with it to the lungs again.

Now suppose that instead of there being 5,000,000 red-blood cells to every cubic millimeter in the blood that is brought to the lungs, there are only half this number—or, if the anemia is very pronounced, as low as one-fifth. You can easily see that no matter how much fresh air with its vital oxygen is supplied, there are not enough red-blood cells to carry away sufficient oxygen for the needs of the system. This explains why an anemic person is short of breath even though there may not be any trouble with the heart or lungs.

You can see that where there is insufficient oxygen to chemicalize the food so that it can be used by the body, the growth and vital functions are going to be crippled for lack of building and repairing material. And you can see that where there is insufficient oxygen to combine with the waste products so they can be carried by the blood to the lungs, kidneys, skin and mucous membranes to be eliminated, these waste products will accumulate in the system and poison it.

It is the iron in the hemoglobin of the blood that carries this precious oxygen. And the iron must come from the food. Therefore, we must see that we and our children get enough of the foods containing iron.

There are certain conditions under which, no matter how much iron is supplied in the food, anemia may be produced. The blood is poisoned by these conditions and cannot take up the iron, but that is not our problem just now. Our problem is to feed our children so that they will get not only a sufficient amount of iron, but of all the other elements which are needed by the sys-

tem—and, in so far as the diet is concerned, to keep them strong and well so that these other conditions will not have a chance to gain a foothold in them.

After my telling you of the very great importance of iron, you will be surprised to know that the whole human body contains only 44 grains, one-tenth of an ounce (95 per cent of this is in the blood). But this one-tenth of an ounce! Oxygen, which makes up two-thirds of the whole weight of the body, or carbon and the other elements which make up the balance of the weight, are not one bit more essential than this little one-tenth ounce—44 grains—of iron.

**One-tenth
of an Ounce**

Iron is so precious that nature hoards it with zealous care. These red-blood cells which have served their usefulness and go to the red-blood cells' heaven (probably the spleen) are not interred with any precious iron. Oh, no. Nature removes a large part of iron from the remains and stores it in the spleen and liver, and then uses it again in making the new cells. This is mostly done in the marrow of the bones in the extra-uterine life (after birth).

But some iron is lost, mothers—about one-seventh of a grain a day. Iron-bearing foods must make up this loss. Girls at puberty, when the menstruation begins, must have a diet especially rich in iron. This also applies to women.

I have talked so much about how precious milk is that you may suspect me of owning a dairy (I don't). Now I must tell you where milk falls down as a perfect food. It is low in iron. When babies nurse too long or are given the bottle too long, and when children take so much milk that they have no appetite for solid

**Milk Low
in Iron**

foods, then they become anemic. It occasionally happens that milk has to be taken away from a child for a while until it learns to like solid food.

While inorganic iron in the form of medicine does sometimes apparently help anemia (whether by stimulating the blood-making function or protecting the food iron from loss in digestion is not known), it is from the organic iron in the food that the daily supply must come. It has been shown that unless a good supply is taken in food, the medicinal iron has no effect. Certainly we must look to foods rather than to medicines for the iron in normal conditions and to maintain normal conditions. And we mustn't leave the supply of iron to chance.

Every day a generous supply of vegetables and fruits must be eaten, for they are a splendid source of iron as well as of the vitamins. Furthermore, where there is anemia, there is usually excessive intestinal putrefaction, and the vegetables and fruits, with their bulk and laxative properties, combat this tendency as well as supply iron.

Foods High in Iron

Vegetables high in iron, in the order of their greatest amounts, are as follows: *Spinach, string beans, cabbage, Brussels sprouts, celery, tomatoes, carrots, peas and potatoes.*

Animal Foods: *Lean meats* (fish is not high in iron), and *egg yolks* (egg yolks have a very high percentage; they have to have enough to make a live chicken!)

Cereals: *Whole wheat* and *oatmeal*.

Nuts: *Almonds, peanuts* and *walnuts*.

Fruits: *Fresh fruits*, while they do not contain a high per cent of iron, have it in a valuable form. *Dried fruits*—dates, figs, prunes and raisins—are relatively high.

You would have to eat a pound and a half of raisins

to get a day's supply of iron, so don't be misled into thinking that a handful of raisins will suffice for all the iron you need. In reality, dried figs, dates and prunes have a higher per cent of iron than do raisins. It would take a little over a pound of these to supply the entire day's needs, as compared to the pound and one-half of raisins. They are all good energy foods and are much to be preferred to candy as a sweet for children.

However, you can see the advisability of not trying to get all of your iron in any one food. For the reasons I have given you, the best way for you and your children to get the largest share of your daily iron ration is to take it in the fresh fruits and vegetables, not forgetting the egg yolks, nuts and dried fruits.

Sugar has no iron or other mineral salts, nor vitamins. (I emphasize this because sugar has become a menace. Yes!) Malt sugar and molasses have a relatively high per cent.

CHAPTER VII

WATER

WATER comprises about two-thirds of the body weight. We are all regular old soaks. Water is necessary for all of the body fluids and secretions, and is a part of every cell in the body. It holds the mineral salts and the building materials in solution until they are deposited where they are needed, and it carries away waste products.

So, must we have an adequate supply? Foolish question! If we are totally deprived of food and water, we will die from thirst long before hunger is fatal.

Heavy Drinkers

The bodies of babies and children contain more water in proportion to their weight than do adults and the restriction of water hinders their growth and development. "I want a drink" is perhaps the most familiar demand of childhood, and it is one that has a big physiological need as a basis. We will have to allow our children to be heavy drinkers.

You have heard the story of the little girl whose mother, thinking that her demand for a drink in the night was a whim, threatened to spank her if she asked for it again. The little girl waited a little while, and then finally said: "Mamma, when you get up to spank me, will you get me a drink!" That's pathetic, isn't it!

Be Sure of Its Purity

Unless you are sure of its purity, water should be boiled, or distilled water used. This is important for campers or vacationists who go where surface

water may contaminate the water supply, otherwise typhoid fever may be an unpleasant aftermath.

Many cities purify their water supplies with freshly made chloride of lime. In the proportions used, it is harmless to man, but deadly to germs. The death rate from typhoid fever has been reduced to one-fifth the original rate in some cases. Other water-borne diseases have also been markedly lessened. One grain (o-n-e g-r-a-i-n) to a quart of water will destroy all germs in a few minutes. (If you won't want to go to the trouble of boiling or sterilizing all the water used when you suspect it is impure, and exercising the other precautions to prevent typhoid, be vaccinated against it. That will immunize you.)

It is highly important that the water given to babies be absolutely pure, for their intestinal tracts are so easily deranged. Many deaths have been traced to impure water as the initial cause. That is why you always see boiled water advised in infancy.

The principal diseases that are transmitted by water are typhoid, cholera and dysentery. Water may also transmit the eggs of animal parasites, such as intestinal worms.

**They're
Bad-uns**

Many large epidemics have been traced to infected persons whose discharges have not been properly taken care of.

In experiments upon animals it has been shown that large numbers of germs have to be taken by mouth before the disease will be contracted, for evidently in animals the intestinal tract destroys most of the germs. That is true to some extent in man, when in perfect health, but as perfect health is not common, we cannot depend upon this.

The health departments have a big problem in keeping the water supply pure, and we should wholeheartedly support them in this and in all of their efforts to keep us free from disease. They can do it very effectively if we coöperate with them.

**Flavor not
so Good**

Water besides carrying specific germs, if contaminated, may carry other impurities, such as decomposing organic animal matter, and mineral contamination, such as lead from imperfect pipes. Occasionally the water supplies, especially during the hot weather, will have a disagreeable odor and taste, variously described as "fishy," "cucumber," "moldy," "grassy," etc. That is usually due to the rapid growth of microscopic organisms of the algæ group. They have a little oil in their make-up which supplies the odoriferous punch. Their growth is stopped by copper sulphate applied by the water officials of the health departments in such doses as are perfectly harmless to man, but deadly to the flavorers.

**Another Scare
for You**

Very hard water should be boiled or distilled because it has been found that kidney and bladder stones are much more common in districts where only very hard water is obtainable. (Overeating and inactivity, without doubt—without even a shadow of a doubt,—play a greater rôle in the formation of stones than does water.)

The idea that distilled water is dangerous has no scientific foundation. The table salt which we use—but should be careful not to use in excess—and the mineral salts in our foods (if properly chosen) will more than make up for the inorganic materials that have been taken from the water by distillation.

The chief thing to avoid with water and other liquids at mealtime is to take them in moderation and not to use them to wash down the foods that have not been thoroughly masticated. We must teach our children (and ourselves) not to drink while there is food in the mouth.

**Water
with Meals**

Children should be given water freely and regularly between meals, especially during the hot weather. Ice water and other iced drinks are permissible in moderation but taken in large amounts, and rapidly, they may cause severe intestinal disturbance both in children and adults. Freezing does not always kill disease germs, so ice from impure sources also must be under suspicion.

No rule can be laid down as to the exact amount of water that should be taken, for the needs for water will be modified by the age and size, exercise and season, the amount of other fluids that are taken—milk, soup, fruit juices, etc.—and the concentration and amounts of foods.

**Amount of
Water Needed**

A large amount of water (about $2\frac{1}{2}$ quarts) is eliminated every day through the lungs, skin, kidneys and intestines. So a large amount must be taken every day combined in the foods and in the form of drink, to supply the daily loss. Normally from one to two quarts of water should be taken in fluid form in addition to that which is taken in the food. (Foods vary from 50 to 90 per cent in water.) However, water drinking can be overdone as can any good thing.

Salty foods and sweets cause a retention of water in the system, so more must be supplied to keep the tissue fluids and blood in their normal concentration. That is why we are thirsty when we eat these foods. Nature

causes each cell to cry out for more water to keep it normal.

It is due to different degrees of water retention that our weight varies one or two pounds from day to day. Of course, if we habitually overeat—some of us—our weight doesn't vary except in the upward trend.

Kellogg claims that mineral waters are harmful rather than beneficial. Van Noorden calls attention to the fact that saline waters when long used cause colitis (inflammation of colon). It is a bad practice to take any course of mineral waters without the supervision of your physician.

Four "Ifs"

It is usually taught that soda water should not be given to children before the ninth or tenth year. It is exceedingly difficult to keep it away from them, and if these four "ifs" are observed, I don't believe it will harm them: IF it does not cloy the appetite for their proper growth foods; IF it is taken in moderation; IF it is not drunk rapidly, and IF made of unadulterated materials.

This finishes our little talk on the members of The Food Sextet. Next chapter we will take up a little acrobatic work. We'll balance them.

CHAPTER VIII

BALANCED DIET

FOOD has a threefold function:

FIRST—It must supply all of the elements which are necessary to make the structure of the living cells.

SECOND—It must supply energy for heat and for the activities, internal and external.

THIRD—It must regulate the vital processes to produce that harmony which means health.

We might add a fourth.

FOURTH—To add to the joys of life.

“All human history attests
That happiness for man—the hungry sinner—
Since Eve ate apples,
Much depends on dinner.”

—BYRON.

When our food is taken in such amounts and proportions that all of these functions are fulfilled, then we have a balanced diet. Our knowledge of what constitutes a balanced diet for man at different ages and activities has been gained by:

FIRST—Many accurate experiments in the nutrition laboratories, with apparatuses (respiration and food calorimeters) devised to measure the energies of men and children of different ages and activities, and the energy of foods.

SECOND—Other experiments covering certain periods of time on groups of men—soldiers, students, professors of nutrition, etc.—who volunteer for the work.

THIRD—Observations and histories of different peoples of good nutrition.

FOURTH—Animal experimentation.

How Are We
to Know?

Now, briefly, what has been found to be a Balanced Diet, and how are we to know when we have one?

FIRST—Total amount of food. If you maintain normal weight and health (normal weight will fluctuate two or three pounds, due to different retentions of water), you can be pretty sure your amounts are right and the proportions must be more or less right also. (That is why I pay so much attention to normal weight in my teachings.) For children, normal weight must include normal rate of gain.

SECOND—The proportions of the different elements should be: Protein, 10%-15%; Fat, 25%-30%; Carbohydrate, 60%-65%. Taking the highest proportion of protein and fat for the children's needs, this table will also do for them. (The vitamins and minerals are taken care of when you properly select your proteins, carbohydrates and fats; you know that from our chapters on those elements.)

Now these figures will mean nothing to you without a knowledge of the unit by which they are measured, i.e., the calorie. So you must have the knowledge. It is not difficult. We'll have that in the next chapter.

This
Simplifies
It for You

If you know the protein value of the main protein foods and get the correct proportions of protein, and if you are very moderate in the use of free fat, I believe in *normal* cases you can ignore the calculations of the fats and carbohydrates.

Now I want to add another "if." This will be true,

IF you include daily at least a pint of milk in some form (for children, one and a half pints to a quart), a big serving of cooked vegetables, especially greens, a big fresh salad, some fresh fruit when obtainable—canned or dried when not—and whole-grained foods—breads and cereals.

AND—IF you include these foods in your diet, you are going to be pretty sure to have not only the correct proportions of fats, carbohydrates and proteins, but the correct proportions of vitamins and mineral elements. This, with a plentiful supply of pure water, will give you a balanced diet.

It is wisest, of course, to have a balanced diet every day, but if for a short period this cannot be done, don't worry yourself to death about it because nature has a reserve store, more or less, which can be drawn upon for short periods; but it is not wise to impose upon nature too often nor for too long a period. The vitamins are probably stored to a less extent than any other of the elements.

**Don't Worry
(Don't You
Hate That
Advice?)**

CHAPTER IX

CALORIES

AND now, mothers, we come to the calories.

Perhaps you have heard that the calorie "theory" has exploded? Oh, no, it hasn't. In the first place, there isn't any calorie theory, any more than there is a yard theory, or a quart theory. A calorie is still the standard unit of measuring heat and the standard unit of measuring the energy value of food.

We have to have a unit of this sort for we cannot measure the need for food by bulk or weight, because the foods differ so much in their concentration and energy value. For instance an ounce of oil contains approximately 250 units of energy value and an ounce of lettuce contains but five. You can see the necessity for a standard unit of measurement of energy value from this comparison.

You should know the energy or caloric needs of the body and the energy or caloric values of food, so that you can supply yourself and your children intelligently. This knowledge is not at all hard to acquire.

Foods Estimated in Calories

The carbohydrates, fats and proteins are the foods that can be estimated in calories. The mineral salts and vitamins are vital to the system, but they do not supply in themselves sufficient energy or heat to be computed in calories. It is for this reason that you hear unthinking (and sometimes bum-thinking) people say that the caloric "theory" has been exploded,

or that it is in the discard, or is absurd, or misleading and so forth. All of this is untrue. In the scientific feeding of infants, children and adults, we are using our knowledge of the caloric value of foods more than we ever did. Of course, *we must always emphasize the importance of getting the calories needed from the foods which will also supply the vitamins, mineral elements, and the proteins in sufficient amounts and of the right kind.*

The reason that so many of our adult population are overnourished, hence overfat and diseased, and so many of our children are undernourished, with its accompaniment of diseases, is due to the fact that the knowledge of the caloric value of foods has not been known.

The Reason

These cases have proved that instinct is not always the right guide for the amount of foods nor the kinds of foods that are necessary for well-being. However, we are learning rapidly, and just as rapidly we are improving.

Through the knowledge of food values as expressed in calories—measured feeding—combined with our newer knowledge of vitamins, the overweight are reducing and are improving their health and their efficiency. Undernourished children are gaining and are healthier and happier. So, let me repeat, mothers, the calorie is not discarded, nor will it be, unless a better unit is discovered to take its place.

Von Pirquet, of Vienna, has been using a food unit he created, called the “nem,” taken from the initials of the words nutrition, element and milk. The nem is the amount of food value in a gram or 1/1000 of

The “Nem”

a quart of milk. However, the computation of the nem is rather complicated, and is based upon the metric system which is not in popular use in the United States, so it will probably not be adopted extensively here, and the calorie will still remain. There is no reason why it should not, because it has been found practical and dependable.

**I Count on
My Fingers,
Myself**

I know that if the use of calories required a lot of mathematical work and time, many of you would still have to continue to feed your children by guesswork. However, I repeat, a knowledge of calories is not at all complicated and it is not at all hard to learn.

You do not have to know—nor could you know—accurately the caloric value of foods, unless you were going to have the foods weighed and you knew exactly the proportions of fat, carbohydrate and protein in every food and combination of foods. This, obviously, would be very difficult. But the approximate knowledge which I will give you will serve just as well, except in some extreme cases, as would the accurate knowledge. There are so many ordinary foods that are 100 calories, that they are easy to remember.

No, But—

Do you have to know the caloric value of foods and know how many calories your children are taking, if they are apparently growing properly and are perfectly well? No, you do not have to in these cases. If your children are perfectly well and are normal weight and growing normally they are evidently getting the right number of calories instinctively. But they may not continue normal weight. One of them may get too fat, or one of them may become undernourished; then

you must have a knowledge of calories so you can know if these conditions are brought about by faults in their feeding.

And even in case your children are all well and continue well, you must have a knowledge of calories or you will be ignorant of part of the broad science of nutrition. (Perhaps you need the calories for yourself or some other adult member of the family? Haven't I had a letter from you telling me how much overweight you are?)

So—that's settled. Now for the little knowledge which is not going to be a dangerous thing.

Calorie (symbol C) is a heat and energy value unit. Technically it is that amount of heat necessary to raise one pound of water four degrees, Fahrenheit. It is not heat, it is not food, it is simply the unit of measuring them just as the yard and the quart are measures of length and of liquids.

Definition

Samples of all foods have been burned in the nutrition laboratory in a little apparatus called the bomb calorimeter, and the amount of heat which they give off has been definitely measured. And these nutrition laboratories have given us the data of the fuel or energy value of all of the known foods.

Very complicated apparatuses known as respiration calorimeters have shown that the food burned in the body gives off approximately the same amount of heat or energy as when burned in the calorimeter, and they have determined just how much food is needed at all ages, while at rest, sleeping and at work.

APPROXIMATE TABLE OF CALORIES NEEDED DAILY

(From "Chemistry of Food and Nutrition"—Sherman. Courtesy of Macmillan Company.)

Under 1 year	.....45 Calories per lb.
1-2 years	.....45-40 Calories per lb.
2-5 years	.....40-36 Calories per lb.
6-9 years	.....36-32 Calories per lb.
10-13 years	.....34-27 Calories per lb.
14-17 years	.....30-22 Calories per lb.
18-25 years	.....25-18 Calories per lb.

"Children who are very active or growing very rapidly may require even more food than the table just given suggests."

"Assuming average size at the different ages, the allowances in Calories per day become about as follows:

Children of 1-2 years inclusive.....	1000-1200 C. per day
Children of 2-5 years inclusive.....	1200-1500 C. per day
Children of 6-9 years inclusive.....	1400-2000 C. per day
Girls of 10-13 years inclusive.....	1800-2400 C. per day
Boys of 10-13 years inclusive.....	2300-3000 C. per day
Girls of 14-17 years inclusive.....	2200-2600 C. per day
Boys of 14-17 years inclusive.....	2800-4000 C. per day

"Above the age of 17 years, although there is still some growth, differences in activity due to occupation become so great that the food requirement will usually depend as much upon occupation as upon age."

Now, from these tables find out how many calories your child needs. From the table of foods which follows reckon how many he is getting. It is not difficult. It may be illuminating. Remember if he is undernourished he probably needs over the highest, and if he is over-nourished he needs under the lowest.

TABLE OF 100-CALORIE PORTIONS OF FOOD

(This is a table I have rearranged and condensed from the standard tables so it can be more easily remembered.)

Bread and Crackers

BREAD: slice, 3 x 4 x $\frac{1}{2}$ inches (1.3 ounces)

(White, whole-wheat, gluten and rye practically the same caloric value per same weight)

Boston Brown: slice, 3 x $\frac{3}{4}$ inch

Corn: slice, 2 x 2 x 1 inch

French or Vienna Roll: 1

Popover: 1

Muffins: $\frac{3}{4}$

Zwieback: 3 slices ($3\frac{1}{4}$ x $\frac{1}{2}$ x $1\frac{1}{4}$ inches).

CRACKERS

Boston: 1

Educator: 12

Graham: 2

Oatmeal: 7

Oyster: 24

Saltines: 6

Soda: 4

[*Protein C's in bread and crackers —12 to 16 to the hundred.*]

Cakes and Cookies

Simple Cake: piece, $1\frac{3}{4}$ inch cube

(Other cakes depend upon icing, fruit, nuts, etc.

Compute approximately)

Plain Cookies: 2 cookies, $2\frac{1}{4}$ inches in diameter

Gingersnaps: 5

Ladyfingers: 2 to 4

Macaroons: 2

Doughnuts: $\frac{1}{2}$

Candies and Sweets

Chocolate Fudge: piece, $1\frac{1}{2}$ x $\frac{3}{4}$ x 1 inch

Cocoa: 4 rounding teaspoons

(Chocolate, a little less)

Plain Hard Candies: peppermints, molasses, lemon drops, etc., average about 100 calories per ounce

Chocolate and Nut Candies: on account of the oil in the chocolate and nuts, a little over $\frac{1}{2}$ ounce

Honey: Average 1 full tablespoonful

Rich Thick Syrups, Jellies and Marmalades: approximately the same

Sugar: 3 full cubes or 2 rounding teaspoonfuls

(Candies can be reckoned by the sugar)

[No protein in refined white sugar.]

Cereals

COOKED CEREALS

Oatmeal, Cracked Wheat, Farina, Corn Meal, and others

Average: $\frac{3}{4}$ cupful

Plain Cooked Macaroni, Spaghetti, and Noodles: the same

(When these are cooked with milk and cheese they probably average less than $\frac{1}{2}$ cupful)

DRY CEREALS (ready to serve)

Puffed Cereals, Post Toasties, Cornflakes, Roasted Bran-flakes, Popcorn, etc.: Average $1\frac{1}{4}$ cupfuls

Shredded Wheat Biscuit: 1

Shredded Wheat Triscuit: 2

Grape-Nuts: 2 rounding tablespoonfuls

[Protein C.'s in Cereals—12 to 18 to the hundred; oatmeal the highest.]

Custards, Puddings, Pies, etc.

Cup Custard	}	Average $\frac{1}{3}$ cupful
Cornstarch		
Blancmange		
Etc.		

Plain Gelatin: 1 scant cupful

Simple Rice

Bread	}	Average $\frac{1}{2}$ cupful, scant
Tapioca		
Water Ices		
Etc.		

Ice Cream: $\frac{1}{4}$ cupful

(Depends upon richness)

PIES

With top crust: About $\frac{1}{4}$ ordinary slice, or $1\frac{1}{4}$ inches at edge

Without top crust: 2 inches at edge
(Depends upon richness)

Dairy Products and Oils

MILK

Whole milk: 5 ounces ($\frac{5}{8}$ cupful)

Cream (thin): $\frac{1}{4}$ cupful

Cream (thick): $1\frac{1}{3}$ tablespoonfuls

Cream (whipped): 1 heaping tablespoonful

Skimmed milk: 10 ounces ($1\frac{1}{4}$ cupfuls)

Buttermilk: 10 ounces ($1\frac{1}{4}$ cupfuls)

(Artificial buttermilk depends upon whether made
with whole or skimmed milk)

Condensed Milk (unsweetened): 4 tablespoonfuls (scant)

Condensed Milk (sweet): $1\frac{1}{2}$ tablespoonfuls

Malted Milk: 1 round tablespoonful

Powdered Milk: 1 round tablespoonful

[*Protein C's in whole milk—20 to the hundred; skim and butter-milk, 35; condensed (unsweetened), 23; condensed (sweet), 11.*]

Butter or Margarines: 1 level tablespoonful

Olive Oil and other oils and fats: 1 scant tablespoonful

CHEESE

Most solid cheeses: Approximately 1 full cubic inch

(Full-cream cheeses, a little less)

Cottage Cheese: 2 heaping tablespoonfuls

[*Protein C's in solid cheeses—25 to the hundred; cottage cheese, 75.*]

EGGS ($1\frac{1}{3}$)

1 egg: 75 calories

1 yolk: 50 to 60 calories

1 white: 15 to 20 calories

[*White of egg is almost pure protein; yolk of egg approximately 20% protein, 80% fat.*]

Fruits

FRESH

Apple	}	1 large
Pear		
Banana		
Orange		
Grapefruit: $\frac{1}{2}$ large		

Berries	}	Average 1 cupful
Grapes		
Cherries (stoned)		
Blackberries: $\frac{1}{2}$ cupful		
Cranberries: 2 cupful		
Cantaloupes: 1 melon $4\frac{1}{2}$ inches in diameter		
Watermelon: $\frac{3}{4}$ pound, edible portion		
Plums	}	3 to 4 large
Apricots		
Lemons		
Peaches: 3 medium		
Pineapple: 2 slices, 1 inch thick		
Olives (green or ripe): 6 to 8		
(Stewed Fruits, depending upon amount of sugar: Approximately $\frac{1}{2}$ cupful)		

FRUIT JUICES

Orange	}	Average 1 cupful
Grapefruit		
Lemon		
Grape Juice: $\frac{1}{2}$ cupful		

DRIED FRUITS

Dates: 3 to 4
 Figs: $1\frac{1}{2}$ large
 Raisins and Currants: $\frac{1}{4}$ cupful
 Prunes: 4 medium

[Protein C's in fruits from 2 to 5 to the hundred, with the exception of berries, currants and rhubarb, which have approximately 10 C's to the hundred.]

Meats and Fish**MEATS**

Any lean meat: Approximately 2 ounces
 Fat meat: 1 ounce
 (Piece $3 \times 2 \times \frac{1}{2}$ is 2 ounces, or meat part of ordinary lamb chop is 1 ounce.)
 Bacon: 4 small crisp slices

FISH

Lean fish: 3 ounces
 (Cod, haddock, halibut, etc.)
 Fat fish: 2 ounces
 (mackerel, salmon, etc.)

Oysters: 12
 Sardines: 4 (1½ ounces)
 Lobster: 4 ounces

[Protein C.'s in meats and fish—50 to 75 to the hundred.]

Nuts

Almonds, Peanuts: 10 to 12 large
 Filberts: 10
 Brazil: 2
 Chestnuts: 20 small
 Pecans: 5 large
 Walnuts (English): 4 large
 Coconut (prepared): ½ cupful (½ ounce)
 Nut Butters: 1 slightly rounding tablespoonful

[Nuts highest in protein; peanuts and peanut butter, 20 C.'s protein to the hundred; almonds, 15; chestnuts, Brazil and walnuts, 10. (Nuts are from 60 to 80% fat—good fat—with the exception of chestnuts, which are mostly carbohydrate.)]

Soups

Creamed Soups: ½ cupful scant
 Consommé (no fat): 4 cupfuls
 (Thick vegetable and legume soups: 1 to 2 cupfuls, depending upon richness)

Vegetables (sauces and butter added not included)

Asparagus	} Average 1 pound. (These vary ¾ to 1¼ pounds, but you can remember them more easily by the average of 1 pound)
Cabbage	
Cauliflower	
Celery	
Cucumbers	
Lettuce	
Radishes	
Spinach	
Tomatoes	

In measurement,

Asparagus: 20 large stalks
 Cabbage (shredded): 5 cupfuls
 Cauliflower: small head
 Celery: 15 stalks

Cucumbers: 3, six inches long

Lettuce: 2 good-size, firm heads

[*Protein C.'s per hundred. Average approximately 20 to 25 to the hundred.*]

Beets	}	Average $\frac{1}{2}$ pound. 1 big cupful cooked plain; sauces and butter not counted in
Carrots		
Onions		
Parsnips		
Turnips		
Squash	}	

[*Protein C.'s average 10 to the hundred.*]

String Beans: 2 cupfuls

[*Protein C.'s average 20 to the hundred.*]

Beans, cooked	}	Average $\frac{1}{3}$ cupful
Canned Corn		
Succotash		
Lentils		
Stewed Mushrooms	}	Average $\frac{3}{4}$ cupful
Peas, cooked		

[*Protein C.'s to the hundred: Beans and lentils, 20; corn, 10; succotash, 20; mushrooms, 30; peas, 25.*]

Potatoes, white: 1 medium (3 ounces)

Potato Chips: 8 to 10 large pieces

Sweet Potatoes: $\frac{1}{2}$ medium

[*Protein C.'s to the hundred: White potato, 10; sweet potato, 6.*]

PART II

CHAPTER I

WEIGHT

THE recent surveys made by the nutrition experts disclose that there are from five to six million malnourished children in the United States. Something wrong, something wrong! What is it?

One of the reasons, dear mothers, is this. While the weekly weighing of your babies has been almost a religious rite with you, you have not realized that the monthly weighing of your children is just as important. This is not altogether your fault. We physicians perhaps have not emphasized this often enough.

Had the importance of a normal gain in weight in your children been emphasized, and had their monthly weighings been carried out as faithfully as the weekly weighings of your babies, then when there was failure to gain over any length of time you would have had the cause investigated, and you would have made some effort to remove it, the same as you did when your babies failed to gain.

While weight is not the only thing we have to go by to judge the physical condition, it is the surest single thing we know. We know that normal health without normal nutrition is not possible. We can also say that when there is normal nutrition, as expressed by normal weight, as a rule there cannot be any serious disorder present. And if there is normal weight and

**Surest Thing
We Know**

normal rate of gain, we must suppose that the child is getting an adequate diet.

**Watch Your
Weight**

“Watch Your Weight!” is a health order of no mean value. Because this is so, a household scale is one of the most important pieces of furniture to buy. Instead of getting a scale for the baby only, invest a little more money and get one that the whole family can use. There are good ones on the market at comparatively low prices.

Normal babies should be weighed once a week and normal children once a month. Undernourished and over-nourished children should be weighed once a week until normal weight is attained. Children should be taught in childhood the importance of keeping up this monthly weighing the rest of their lives. If that is done we shall cease seeing so many persons sweltering under blankets of fat and other persons shivering in their naked bones.

The height of children should be taken twice yearly—six months apart. They usually grow most rapidly in the spring and fall.

**Weight—
Height—Age**

The weight in relation to height and age is the best guide for normal weight. It is a more reliable standard than that of relation of weight to age alone, as children of the same ages may vary considerably in weight and still be normal. The weight for height has been found to vary little even in the different races. For instance, the Russians are a tall race and their children weigh more than the Japanese who are a short race.

In a series of weights in thousands of foreign-born children and of American children it was found that the extreme variation at the height of fifty inches was but nine pounds. Of course, a child may be below stand-

ard in height as well as in weight even when the ratio between them is normal—for the same causes which have made a child underweight may also make him below height. *Don't forget this, mothers.*

Age has to be considered somewhat, however, and of two children of the same height the older should weigh a little more. The tables of weight which we use are based on the averages of many children. They cannot be considered absolutely accurate standards to go by, for an individual child has its own normal height and weight, which may not be exactly the average. Still, however, they are guides and the best available guides we have. As Holt has expressed it, the average is a line. The normal is a zone extending a little above and below this line.

Age

Dr. W. R. P. Emerson has stated that he never has seen a child habitually seven per cent underweight for his height, as given by the standard tables, who did not show other marked signs of malnutrition. I am using the terms malnutrition and undernourishment more or less interchangeably but in reality there is a slight difference. A malnourished child may be undernourished or it may be overnourished. The prefix, *mal*, means bad. However, usually when the term malnourished is used, we mean undernourished.

Our insurance companies and all of our studies of children have shown that the undernourished child has its resistance to disease decidedly lowered. In the warring countries of Europe during the war there was a marked increase of tuberculosis in children because of undernourishment.

It is better for a child to be slightly over the average weight. When over fifteen to twenty per cent over the

average, however, depending upon the child, it brings him into the fat-child class. And it is just as important to have that child's condition watched and his overweight reduced as it is for the undernourished child to have his condition watched and his weight increased. For the fat child also lowers his resistance to infectious disease and he is much more liable to develop diabetes. More later on the under- and over-nourished child.

The weight tables follow, mothers. Check up and see how he stands. Saying that makes me think: How is his posture? *Correct posture is important.* Does he need corrective exercises?

WEIGHT—HEIGHT—AGE TABLES

NOTES REFERRING TO TABLES

The tables are to be used as follows:

Take, for example, a 14 year old boy, who is 64 inches tall. By following the numbers horizontally opposite the figure 64 it will be found that he should weigh 113 pounds. A 12 year old boy who is 64 inches tall should weigh 109 pounds and an 18 year old boy should weigh 126 pounds.

Age is taken at the nearest birthday; height at the nearest inch; and weight at the nearest pound. A child is considered 6 years old at any time between $5\frac{1}{2}$ and $6\frac{1}{2}$ years.

The figures not starred represent exact averages in round numbers.

The starred figures represent smoothed or interpolated values.

Children weighed in ordinary clothing, with shoes, coats and sweaters removed.

Tables for boys and girls of school age. Prepared by Bird T. Baldwin, Ph.D., Iowa Child Welfare Research Station, State University of Iowa, and Thomas D. Wood, M.D., Columbia University, New York, and reprinted by courtesy of the American Child Health Association.

Tables for infancy and early childhood. Reprinted by permission of Robert M. Woodbury, Ph. D., Children's Bureau, U. S. Department of Labor.

WEIGHT—HEIGHT—AGE TABLE FOR BOYS OF SCHOOL AGE

Height (inches)	Average weight for height (lbs.)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years	Height (inches)
38	34	34	34*														38
39	35	35	35														39
40	36	36	36*														40
41	38	38	38	38*													41
42	39	39	39	39*	39*												42
43	41	41	41	41*	41*												43
44	44	44	44	44	44*												44
45	46	46	46	46	46*	46*											45
46	48	47*	48	48	48	48*											46
47	50	49*	50	50	50	50*	50*										47
48	53		52	53	53	53	53*	55*									48
49	55		55	55	55	55	55	55									49
50	58		57*	58	58	58	58	58*	58*								50
51	61			61	61	61	61	61	61*	64*							51
52	64			63	64	64	64	64	64	68*							52
53	68			66*	67	67	67	67	68	71	72*						53
54	71				70	70	70	70	71								54
55	74				72*	72	73	73	74	74	74*	80*					55
56	78				75*	76	77	77	77	78	78	80*					56
57	82					79*	80	81	81	82	83	83*					57

58	85																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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WEIGHT—HEIGHT—AGE TABLE FOR GIRLS OF SCHOOL AGE

Height (inches)	Average weight for height (lbs.)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	Height (inches)
38	33	33	33													38
39	34	34	34													39
40	36	36	36	36*												40
41	37	37	37	37*												41
42	39	39	39	39*												42
43	41	41	41	41	41*											43
44	42	42	42	42	42*											44
45	45	45	45	45	45	45*										45
46	47	47*	47	47	48	48*										46
47	50	49*	50	50	50	50	50*									47
48	52		52	52	52	52	53*	53*								48
49	55		54	54	55	55	56	56*								49
50	58		56*	56	57	58	59	61	62*							50
51	61			59	60	61	61	63	65							51
52	64			63*	64	64	64	65	67	71*						52
53	68			66*	67	67	68	68	69	73*						53
54	71				69	70	70	71	71							54
55	75				72*	74	74	74	75	77	78*	92*				55
56	79					76	78	78	79	81	83*					56
57	84					80*	82	82	82	84	88					57

WEIGHT—HEIGHT—AGE TABLE FOR BOYS FROM BIRTH TO SCHOOL AGE

Height (inches)	Average weight for Height (pounds)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8	8											
21	9½	9	10										
22	10½	10	11										
23	12	11	12	13									
24	13½	12	13	14									
25	15	13	14	15	16	18							
26	16½		15	17	17	19							
27	18		16	18	18	20	20						
28	19½			19	19	21	21						
29	20½			20	21	22							
30	22			22	22	22	22	22	24	26			
31	23			23	23	23	23	23	25	27			
32	24½			24	24	24	24	26	26	27			
33	26					26	26	27					
34	27						27		27				
35	29½						29	29	29	29	29		
36	31							30	31	31	31	32	
37	32							32	32	32	32	34	
38	33½								33	33	33	35	
39	35								35	35	35		
40	36½									36	36	36	36
41	38									38	38	38	38
42	39½									39	39	39	39
43	41½									41	41	41	41
44	43½									43	43	43	43
45	45½											45	45
46	48											48	48
47	50											50	50
48	52½											52	52
49	55											55	55

Notes:

1. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest birthday.
2. Up to and including 34 inches the *weights are net*. Above this the children weighed in ordinary clothing with shoes, coats and sweaters removed.

WEIGHT—HEIGHT—AGE TABLE FOR GIRLS FROM BIRTH TO SCHOOL AGE

Height (inches)	Average weight for Height (pounds)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8	8											
21	9	10											
22	10½	11											
23	12	12		13									
24	13½	13		14	14								
25	15	13		15	15								
26	10½		14	16	17	17							
27	17½		15	17	18	18							
28	19		16	19	19	19	19						
29	20			19	20	20	20						
30	21½			21	21	21	21	21					
31	22½				22	22	23	23	23				
32	24					23	24	24	24	25			
33	25						25	25	25	26			
34	26½						26	26	26	27			
35	29						29	29	29	29	29	31	
36	30							30	30	30	30	32	
37	31½							31	31	31	31	33	
38	32½								33	33	33	34	
39	34								34	34	34	34	34
40	35½									35	36	36	36
41	37½										37	37	37
42	39										39	39	39
43	41										40	41	41
44	42½											42	42
45	45												45
46	47½												47
47	50												50
48	52½												52

NOTES:

1. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest month.
2. Up to and including 34 inches the *weights are net*. Above this the children weighed in ordinary clothing with shoes, coats and sweaters removed.

ABOUT WHAT A BOY SHOULD GAIN ON AN AVERAGE EACH MONTH

AGE		
5 to 8	.....	6 oz.
8 to 12	.....	8 oz.
12 to 14	.....	12 oz.
14 to 16	.....	16 oz.
16 to 18	.....	8 oz.

ABOUT WHAT A GIRL SHOULD GAIN ON AN AVERAGE EACH MONTH

AGE		
5 to 8	.....	6 oz.
8 to 11	.....	8 oz.
11 to 14	.....	12 oz.
14 to 16	.....	8 oz.
16 to 18	.....	4 oz.

The *monthly* gain may not be regular. Sometimes there may be stationary weight for over a month, perhaps two, for no apparent reason. However, it should not be considered normal for any longer than this, nor for as long as this if there are any symptoms aside from the stationary weight.

The *yearly* gain for children is approximately 5 pounds a year after the first year and up to 11. After that the gain is approximately 10 pounds a year until growth ceases. And that is the weight to maintain, if it is normal. We do not allow an increase of weight for increasing years after full maturity as was formerly done. In fact, insurance statistics show that those under the average weight after 30 have a longer life expectancy.

CHAPTER II

TEETH AND THOROUGH MASTICATION

MOST of you realize the importance of your children being taught to keep their teeth clean by a thorough brushing at least twice a day, and most of you realize the importance of taking your children to a dentist at frequent and regular intervals. (At least every six months.) Tiny cavities can then be filled with practically no pain so the children will not suffer, nor fear the visit. And you know that this is just as important for the temporary as well as the permanent teeth.

You know decayed and painful teeth must receive attention, for a child cannot chew his food and he is very apt not to eat sufficient food, if chewing causes pain. Decayed teeth also furnish an entrance to disease germs and their resulting poisons, the same as diseased adenoids and tonsils do.

I believe you realize all this, mothers. But have you realized the importance of furnishing in their diets the material for building strong and healthy teeth so that they will be more resistant to decay and will develop properly?

Haven't you thought that whether the teeth are good or bad was an inherited characteristic which you could not alter? That because father had bad teeth, Jackie, who takes after him, will probably have bad teeth too? While we cannot deny that the shape and size may be more or less an inherited characteristic,

**Teeth, Good
and Bad**

we now know that inheritance is the smallest factor for determining whether the teeth shall be good or poor. The factor which determines whether the teeth shall be good or poor is whether the diet is good or poor. That is, whether it is rich in building materials for the teeth or not.

**The Mother's
Diet**

The mother's diet during pregnancy, during the last months of which the baby's teeth begin to develop, and while nursing the baby; and the child's diet after weaning, are the chief factors in the development of the first teeth. Not inheritance as we use that term.

Whether the permanent teeth are good or poor depends upon the child's diet while they are developing, as well as the dental and cleaning care they receive. Largely the diet, mothers! In the examination of the teeth in school children, it is found that by far the greater proportion of decayed and irregular teeth are found among the malnourished children.

**Not Too Much
Mushy Food**

The special requirements in the diet for the teeth is met if you follow the directions I give for supplying at least three glasses of milk, a liberal amount of green-leaf vegetables, some fruits, nuts, etc., for the mineral elements necessary to be deposited in the teeth, and for their vitamins; and some hard foods, such as coarse cereals, dried toasts, and food containing fiber—these hard foods for the exercise that thorough mastication will give the jaws and teeth.

It has been estimated that when we chew hard food we exert a pressure of 100 to 250 pounds on the teeth. This pressure brings a good circulation of blood to the

teeth and jaws and salivary glands and helps in their development. And this is important, mothers.

Having a large element of the hard food which required mastication is given as one of the reasons for the good teeth of certain primitive peoples.

Thorough mastication is also necessary for the proper mixing of the foods for the first digestive juice, the saliva, and for finely dividing the foods so that they will be easily attacked by the digestive juices in the stomach and later the intestines.

Thorough mastication has to be taught to children right from the start of giving solid foods, by giving small amounts for each mouthful and showing them how. Later, as the children grow older, it seems to be almost natural for them to gobble. Many times it is because they want to get back to play, their natural occupation. During this period they should have some one with them while they are eating to see that too large morsels are not taken at a bite, and that they chew their food thoroughly and swallow it before more food is put in the mouth. *“Chew ’til it’s all gone before you put any more in your mouth.”* Work that overtime, mothers!

**Thorough
Mastication
Not Instinctive**

Children should be made to stay at their meals a certain length of time, irrespective of whether they are finished before that time or not. This will teach them not to hurry as they gain nothing by it.

The importance of greens and milk for their vitamins has been shown experimentally upon animals. When they are fed foods containing no greens or milk, the jaw bones will soften, the teeth decay and a condition similar to pyorrhea will develop. Systemic troubles develop also.

A Warning

While we are talking about development of the jaws and the teeth, let me warn you, mothers, about the first permanent molars. Special care should be given that they do not decay, for they are extremely important teeth. They do the heaviest work in chewing, and they serve as a guide for the other permanent teeth to take their proper positions. Watch these carefully, mothers, because they decay rather easily. If they are pulled, they never return. The jaws will shrink and the teeth will come in irregularly. This is also true if the temporary teeth are lost before their time. (It occasionally happens that a temporary tooth does not loosen and come out on time and it must be pulled if the permanent tooth gives evidence of coming in out of line.)

It is wise to have some fresh fruits or a salad at the end of a meal, because they cleanse the teeth and stimulate the alkaline saliva which in itself is a protection to the teeth.

I have spoken about the effect of candy on the teeth when I discussed candy. I will just repeat here that excess candy works in two ways to cause tooth decay: by acid fermentation in the mouth, and by cloying the appetite so that enough of the proper growth foods are not taken.

AVERAGE TIME OF ERUPTION OF TEETH

DECIDUOUS OR TEMPORARY (Twenty)

Two lower central incisors	6 to 9 months
Four upper incisors	8 to 12 months
Two lower lateral incisors	9 to 12 months
Four anterior molars	12 to 16 months
Four canines (upper, the "eye" teeth; lower, the "stomach" teeth)	14 to 20 months
Four posterior molars	20 to 36 months

At one year should have 6 teeth

At eighteen months should have 12 teeth

At two years should have 16 teeth

At two and one-half to three years should have 20 teeth

PERMANENT TEETH (Thirty-two)

Four first molars	6 years
Eight incisors (replace temporary incisors) ..	7 to 9 years
Eight bicuspid (replace temporary molars) ..	9 to 10 years
Four canines (replace temporary canines) ...	12 to 15 years
Four second molars	12 to 15 years
Four third molars ("Wisdom teeth")	17 to 25 years
(The molars are back of the bicuspid)	

CHAPTER III

FEEDING THE FIRST YEAR

WHILE it is my purpose in this book to cover mainly the diet for children, I shall step aside a little and touch on the subject of feeding infants, for so very much depends upon the child getting the right start in liking the foods necessary for childhood while it is still an infant. In reality while it is still a very young infant; six months old, mothers! Even the nursing babies.

At the sixth month we begin to teach the baby's digestive tract to care for solid foods and the baby himself to like them. Some Pediatricians (children specialists) begin as early as the fifth month. This sounds like heresy, I know, to some of you who have thought that nothing except milk and orange juice should pass babies' lips until well into the second year.

Develop Gradually

It used to be thought that young babies could not digest starchy foods, nor any foods except milk. But it has been proved that the power to digest other foods besides milk is latent and can be developed *if the development is done very gradually*. It is upon this very gradual and slow development of the digestive capacity of the infants that the principle of introducing any new food in the diet is founded.

Strained cereals and puréed vegetables are introduced by the sixth and sometimes as early as the fifth month, beginning with not over one-half a level teaspoonful

and increasing it not more than one-half a level teaspoonful every other day. The first tooth makes its appearance usually at the fifth month, and we believe that nature is now telling us that solid foods should be begun.

One of the chief reasons for including other foods early, is that milk is deficient in iron and may be deficient in vitamins. The babe comes into the world with a store of iron in its liver, but by the sixth month it begins to be exhausted. As there is a very small amount of iron in human milk and cow's milk, we have to think of other foods for this vital element.

Since we are beginning to feed babies solid foods much earlier than we formerly did, we have very many less cases of anemia, scurvy, rickets, and malnutrition than before.

Because we are beginning to feed the babies **But, Mothers!** early does not mean that we do not still continue to condemn giving tastes of things to babies from the table. That is usually pernicious. So often they are given tastes of things they should not have and out of their regular feeding time. The baby should have its little bit of solid food, but only foods that its little intestinal tract can handle, and *given at its regular feeding time*. Irregularity in feeding and the feeding of foods that babies should not have, both of these often coming from the practice of giving "tastes," are two big causes of illness in babies.

The foods besides milk that can be given the first year are the fruit juices and strained cooked fruit or scraped raw-fruit pulp, strained cereal, strained and puréed vegetables, beef and vegetable broths free from fat, and egg yolks.

**Nursing
Babies**

Nursing babies can also begin at the sixth month to have solid foods, just as the bottle babies, although it is not so important for them as it is for the bottle babies—that is, if their mothers are on a correct diet—because of the superiority of the human milk over cow's milk.

Orange juice, or, if that cannot be secured, tomato juice canned or fresh, or raw cabbage juice, should be begun in the second or third month for its anti-scorbutic vitamins. If it is given one hour before the mid-morning feeding and begun in very small doses, not over a small teaspoonful well diluted with water, it will cause no disturbances. This can very gradually be increased until two tablespoonfuls or more are taken every day. These are given to prevent the baby from having scurvy.

Boiled water should also be given babies at least twice a day either from the cup or from the bottle. Water giving can be overdone in babies. I have known babies to have a bottle of water stuck in their mouths every time they opened them to cry as the protest against some discomfort that was not hunger nor thirst. Children need a lot of water, but milk is over ninety per cent water, so babies who are getting mostly milk are getting a lot of water.

Because, as I have said, liking the right foods in childhood must be begun in infancy if we don't want a fight on our hands (why is it that some children who are not taught early have such an unholy aversion to spinach and carrots?), I am going to give you, a little farther on, a table which I have arranged giving you the foods and the time of feedings for your baby from the sixth to the twelfth month.

If your baby is malnourished or ill, or artificially fed, mothers, he should be under a physician's care, either in private practice or at the baby clinics. It is even difficult for a specialist at times to feed these children.

**A Specialist's
Care
Necessary**

Read about the importance of giving your baby your own milk in the chapter on human mothers' milk.

CHAPTER IV

DIRECTIONS FOR THE DIET FROM 6 TO 12 MONTHS

IMPORTANT! IMPORTANT! Remember the principle of adding new foods to baby's diet, mothers, and that is, begin in *very* small amounts and *increase very gradually* so that his digestive powers, which are latent, will gradually develop and will not be overtaxed.

Feed the baby VERY REGULARLY every four hours—6, 10, 2, 6 and 10. You can omit the 10 P.M. feeding at the 10th or 11th month or perhaps earlier. NOTHING between meals but water and its orange or vegetable juice.

BREAD

By the 7th month, begin to give babe a piece of bread—about one-third of a slice. Fine whole-wheat bread which is twenty-four hours old and toasted in the oven, so that it is dried throughout, is best. You can give Zwieback or the hard educator crackers instead for a change. Let him hold it himself. You can tie it with a piece of strong white thread or clean cord to his wrist so he won't drop it. (Never give a child anything to eat that has dropped on the floor unless it is something that can be washed thoroughly. Think what you step on in the streets and track into the house, and you will see the reason for this.)

Give the bread before the nursing or bottle. Only the small amount that the baby's saliva will soften will be nibbled off, but it is given to develop the jaws and

teeth as well as for its food value. When broths are given, some of the toast can be crumbled in them.

BUTTER

Add butter to the toast by the 9th month, beginning with just a little scraping and gradually increase to a third of a level teaspoonful to one-third of a slice of bread. Butter, you remember, is rich in the growth vitamins as well as having energy value.

BEEF JUICES (See Recipes)

Beef juice can be added to the diet by the 6th or 7th month at the 2 P.M. meal. Begin with one teaspoonful diluted. Increase one teaspoonful every other day until two tablespoonfuls. Have no fat on it.

CEREALS

Cereals the first year should be strained. Any well-cooked cereal can be used. Oatmeal, cream of wheat and farina are usually recommended for the first cereals. Oatmeal, because it is highest in protein and iron, should be given three or four times a week. Toward the end of the year, the other whole-grain cereals should be used on account of the mineral elements and vitamins in the bran and germ. All cereals should be very thoroughly cooked—two or three hours if in a double boiler. Best cook them the night before and reheat. If soaked overnight, thirty minutes—at least—over an asbestos mat will do.

Begin the cereals with one-half of a level teaspoonful and increase not more than one-half level teaspoonful every other day until about three tablespoonfuls

at a meal are being taken by the end of the 7th month. A larger amount—up to a half cupful or more—can be given by the end of the year. This amount will depend upon the size and the activity of the child.

When a different type of cereals or fruit pulp or vegetables is given, give about half as much as the baby was getting before, until the effects are noted. Feed the cereals from a spoon without milk or sugar at first, before the bottle or nursing. Later, when milk is being given, then it can have some on its cereal. Use no sugar. It is never necessary nor desirable on cereals. A small amount of salt should be cooked with the cereals.

EGGS

If baby is anemic or rachitic, you can begin giving one egg yolk by the 2nd or 3rd month, two or three times or oftener, a week. (See "Feeding in Rickets," Page 213.) The white is not advised the first year because it is a pure concentrated protein and sometimes causes eczema and other disturbances.

FRUITS

Fruit Juices. The orange juice you can begin to give the 3rd month. Begin with a teaspoonful well diluted and increase a teaspoonful every other day until at least two tablespoonfuls are taken.

If you cannot secure orange juice, then tomato juice, raw or canned (if canned, should be boiled before being served), or raw cabbage juice can be given. Grind the cabbage fine and put in a piece of gauze and squeeze in a press or in the hands (if thoroughly washed). These are given to prevent scurvy.

Fruit. Cooked apples, prunes, apricots, peaches and others, *strained*, or fresh fruit, such as apple or pear or peach, or thoroughly ripe banana, scraped to a fine pulp, can be added to the diet the 9th month. If cooked use very little sugar, and if used cook with the fruit (the fruit acids change it so it is more easily digested).

Begin in small amounts and gradually increase from two to six level tablespoonfuls. The fruits and vegetables contain valuable mineral elements and energy value and are good to prevent constipation as well as scurvy.

VEGETABLES

All vegetables should be steamed or cooked (for all the family) only until tender in a tight-covered vessel and with very little water. Never have any excess water to be drained off from the vegetables because of the valuable mineral elements which are lost. The juice from the cooked vegetables—diluted at first—can be given by the 7th month and will prepare the babe for the strained vegetables which it can have by the 8th month.

Puréed vegetables are vegetables put through a fine strainer and perhaps thickened a little bit with white sauce. The best vegetable—on account of its high iron and vitamins—is spinach, but other vegetables may be used as they are used by the family. It is wise, if possible, to have spinach three or four times a week. The most valuable vegetables that can be used now are spinach, tomatoes, carrots, peas, string beans, cauliflower, asparagus tips, kohlrabi, Brussels sprouts. Remember that all vegetables should be strained through a fine sieve until the first molars are in (at the age of 12 to 16 months usually).

The vegetables can be served with a tiny bit of butter or meat stock or cream; no other fat.

Potato can be begun by the 8th, 9th or 10th month. Baked potato is the most digestible and the part nearest the skin has the most of the mineral elements. A tiny bit of butter or the beef broth can be used on the baked potato, greasy gravies never. Thoroughly mashed boiled potato (boiled with the skin on) can be given also.

Give the vegetables and vegetable juices in the same gradual manner as the cereals. Increase until by the end of the year one-fourth to one-half cupful, after cooking, is taken during the day.

WEANING

By the ninth month, most Pediatricians advise to begin to wean the baby. Begin the first week of the ninth month by omitting the nursing at 2 P.M. feeding. Give eight ounces of half milk and half water boiled together for three minutes. Use no sugar. Increase the milk one tablespoonful and decrease the water one tablespoonful a day until whole milk is given; no sugar need be added. Stop boiling the milk if certified or Pasteurized after two or three weeks.

The second week omit the 10 A.M. nursing also, and give eight ounces of milk, the strength you have worked up to.

The third week omit the 6 P.M. nursing; the fourth week the 6 A.M. nursing, giving the milk instead. By the tenth or eleventh month omit the 10 P.M. nursing. This gradual weaning will cause no disturbances whatever.

If the baby has been a bottle-fed baby, you can begin by the ninth month to gradually decrease the water or

the gruel and the sugar in the formula, until whole milk is being taken some time the ninth or tenth month.

Begin to feed from the cup the last part of the year, otherwise you will have difficulty to wean from the bottle. The bottle need not and should not be given after the first year.

The exact amounts your baby will finally eat will depend upon his age, activities and size, and you yourself will have to find out just how much he will be able to take. But the first amounts you give must be tiny ones, as I have directed, and you must increase in tiny amounts, otherwise you may cause a digestive disturbance.

**Amounts
Needed**

With the foundation of at least twenty-four ounces of milk, the other foods will have to be increased or decreased from the amount I have stated, depending upon his well-being and his weight. If he does not gain the normal amount (at least four ounces), you must increase his calories of solid food. Check up his foods by the calorie list, remembering he needs more than the average number of calories if undernourished and less if overnourished. Increase very gradually, if undernourished. It is seldom necessary to give over a quart of milk to a baby, and it will be undesirable if it satisfies his appetite so he will not take the proper allowance of solid foods.

If he gains too much you must decrease his food allowance. Overweight and underweight are alike undesirable.

Remember, mothers, if your baby is malnourished or ill, he should be under a specialist's care, if possible.

CHAPTER V

TABLE OF FEEDING FROM 6TH TO 12TH MONTH

(See general instructions for beginning and increasing any new foods.)

Calories needed, 1000 to 1200 per day. (Approximately 45 C. per pound per day of normal weight; 5 to 10 more, or less, if underweight or overweight, respectively.)

Feed at 6—10—2—6 and 10. NOTHING between meals, except boiled water and its orange juice at 8 or 9.

6th Month

6 A.M.—Nursing (or bottle if not breast-fed)

9 A.M.—Orange juice, 2 tablespoonfuls. (See directions)

10 A.M.—Breast or bottle preceded by strained Cereal. Begin cereals $\frac{1}{2}$ level teaspoonful, increase same amount every other day until about 2 level tablespoonfuls

Water between meals.

2 P.M.—Nursing or bottle

6 P.M.—Cereal same amount as getting at 10 A.M., followed by nursing or bottle

10 P.M.—Nursing or bottle

7th Month

6 A.M.—Nursing or bottle

9 A.M.—Orange juice.

10 A.M.—Breast or bottle, preceded by strained cereal 3 to 4 level tablespoonfuls

2 P.M.—Nursing or bottle

Vegetable or beef juice minus all fat. Begin, teaspoonful diluted. Increase 1 teaspoonful every other day to 2 tablespoonfuls

Piece of dry toast to nibble on before nursing or bottle. Can put a little in the broth also.

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6 P.M.—Cereal, same amount as getting at 10 A.M., followed by nursing or bottle

10 P.M.—Nursing or bottle

8th Month

6 A.M.—Nursing or bottle

9 A.M.—Orange juice

10 A.M.—Breast or bottle, preceded by strained cereal 3 to 4 level tablespoonfuls

Piece of dry toast to nibble

2 P.M.—Nursing or bottle

Strained vegetables, 1 to 2 level tablespoonfuls.
(See directions)

Bone, good sized, with no fat or meat on it, to gnaw on 2 or 3 times a week

6 P.M.—Cereal, same amount as getting at 10 A.M., followed by nursing or bottle

10 P.M.—Nursing or bottle

9th to 12th Month

6 A.M.—Nursing or bottle. (Omit breast feeding at 4th week of 9th month, give 8 ounces of milk instead. See directions)

9 A.M.—Orange juice

10 A.M.—Breast or bottle, preceded by strained cereal 3 to 4 level tablespoonfuls

Piece of dry toast. Add small amount of butter to toast by 9th month

Egg yolk 2 or 3 times a week, or oftener. Begin this earlier if babe is anemic (see "Rickets"). Can be stirred in milk or taken on toast. (Omit nursing second week of 9th month. See directions.)

2 P.M.—Nursing or bottle. (Omit nursing 2nd week of the 9th month)

Dry toast and butter, $\frac{1}{2}$ to 1 slice

Strained or puréed vegetables up to 3 to 4 tablespoonfuls, or more

Baked potato, 3 to 4 tablespoonfuls, or more. (Begin small amounts, increase gradually)

Fruit, 1 to 3 tablespoonfuls, fresh (scraped) or stewed. If stewed, very little sugar

6 P.M.—Cereal, same amount as getting at 10 A.M., followed by nursing or bottle. Add a little milk on cereal. No sugar. (Omit nursing or bottle by 3rd week of the 9th month. See directions)

10.P.M.—Nursing or bottle. (Omit at 10th or 11th months)

CHAPTER VI

DIRECTIONS FOR THE SECOND YEAR

THE second year has the reputation for being the most difficult year and the most dangerous year for the child, and it usually is.

Do you know why this is so, mothers? I'll tell you. It is because the same scrupulous care is not given in the feeding and other health measures during the second year as the first year. Babies are given foods they should not have and at all hours of the day. Their daily baths are usually discontinued. (And they really need them more rather than less.)

If the same care is given to the baby the second year, the same regularity of meals, and no foods given that he has not learned to digest by *very gradual feeding*, nothing allowed between meals but water and his fruit juice; and if his daily baths and other hygienic measures are kept up, there is no more danger in the second year than the first year. That will comfort you, I know.

Most of the foods necessary for the second year should be begun the first year. Now, of course, they can be taken in larger quantities. The baby can be taking daily from one-half to one cupful of vegetables, measured after cooking. It is best to strain them until the first molars are in (12 to 16 months). It is well to begin giving some of the tender fresh vegetables raw after all the teeth are in and he can chew. Grind

Larger
Quantities
of Food

very fine at first. Some of the vegetables will appear in the stools undigested, but if there is no distress from them, this is no cause for discontinuing them.

**He Has to
Be Shown.**

You, mothers, must see that he masticates his food thoroughly by giving him small morsels at a time and showing him how. Sometime during the second year he can begin to handle a spoon and feed himself, but he must be supervised to see that he does not take too much at a mouthful. If you or some other adult cannot be with him and there is an older child in the family, teach this child to guide him.

When he begins to handle his spoon teach him to hold it correctly, and that is with the thumb over the handle, and fingers underneath, not grasped in the fist over the top of the handle. It will require much patience, *much* patience, and much perseverance, to teach him this, but it can be done. (I know, for I have done it.) If he handles the spoon this way, the food is not spilled all over him and he cannot pile it so high. Try grasping a spoon yourself as a baby usually does and see how difficult it is to get food to your mouth without spilling it. Give him a coffee spoon. He'll love that and he can't get very much on it.

Teach him to use a bit of his bread to push the food on the spoon, *never* the fingers, nor one of those pushers that are sold for the purpose. They are an abomination, and so are the spoons with the turned-over handles. Why teach him anything he has to unlearn? It is unnecessary and unwise. (I use the pronoun "he" throughout, mothers. You know I mean "she" as well.)

EGGS

He has already had egg yolks the first year. When you begin to give him the white of the eggs begin with not more than a teaspoonful and increase the same amount when they are given. As I have told you, some children do not digest egg white easily and it is one of the proteins that may produce eczema if the child is susceptible. Given in this way, it probably won't cause any disturbance. Cook in any way so it is tender. No fried foods for any young child.

BREAD

It is well to continue toasting the bread thoroughly throughout, but you can vary by giving him hard rusks or rolls, or French bread if twenty-four hours old (the bread, mothers, not the baby), for the development of the jaws and teeth. No young child should have fresh or soft bread, hot muffins, doughnuts, griddlecakes, nor waffles, as they are more apt to form gummy masses and ferment and cause distress.

BUTTER

One to two level teaspoonfuls can be taken on the bread and vegetables during the day. It is valuable for its fat and for its growth and anti-ophthalmic vitamins.

MEAT

Scraped beef is made by scraping raw beefsteak with a silver spoon or knife. Make into loose little cakes and broil. Add a little butter and salt (not much).

MILK

Milk is still, and should continue to be, the foundation for the diet, and at least twenty-four ounces should be given daily.

If nothing is given between meals but water (two or three glasses during the day), he will be hungry at meal-times, as he should be. Do not permit him to dawdle, nor to eat too rapidly. The habits of eating he establishes the first two years are probably going to persist throughout life. This applies to other habits as well, mothers!

CHAPTER VII

TABLES OF FEEDING FROM ONE TO TWO AND A HALF YEARS

IMPORTANT! If your babies have not been having solid foods up to the 12th month, begin as you would at the 6th month. You can increase the foods a little faster, but be cautious. The babies may and probably will refuse the solid foods. If so, withhold the milk and starve them to it. It won't hurt them. A 12- or even a 24-hour fast (with plenty of water) will usually convince them you mean business. Be prepared for a stormy time, and warn your neighbors so they won't have you up before the anti-cruelty society. Has happened!

TABLE OF FEEDING FROM 12TH TO 15TH MONTH

(Calories, 800 to 1100)

6 A.M.—Milk, 8 ounces, from cup by 13th month. (No sugar)
Dry crisp bread and butter; about $\frac{1}{3}$ ordinary slice;
increase gradually
Juice 1 orange at 9 A.M.

10 A.M.—Milk, 8 ounces from cup
Cooked cereal, 3 to 4 level tablespoonfuls with milk
(part of above). (No sugar)
Dry crisp bread and butter, $\frac{1}{3}$ to $\frac{1}{2}$ slice
Egg yolk 2 or 3 times a week or oftener; cooked slightly
or raw—on toast or in milk

2 P.M.—Milk, 4 to 8 ounces from cup (no sugar) after solid
foods
Meat or vegetable broths (3 to 4 ounces), with rice
or stale bread in it, 2 or 3 times a week
Crisp bread and butter
Scraped beef, 1 tablespoonful 2 or 3 times a week when
broths are not given

Cleaned bone to gnaw on two or three times a week
 Puréed vegetables, 3 to 4 tablespoonfuls. (Potato and
 one other. Spinach, 3 to 4 times a week, if possible)
 Fruit pulp cooked or raw, 2 to 4 level tablespoonfuls

6 P.M.—Milk, 8 ounces from cup (no sugar) after solid foods
 Dry crisp bread and butter, $\frac{1}{3}$ to $\frac{1}{2}$ slice
 Cereal ($\frac{1}{4}$ to $\frac{1}{2}$ cupful)—some of above milk in it
 Fruit pulp, 1 to 2 tablespoonfuls

Water, $\frac{1}{2}$ to 1 glass between meals

TABLE OF FEEDING FROM 15TH TO 18TH MONTH

(Calories, 900 to 1200)

(See note over table for 12 to 15 months)

(Can begin 3 meals a day now)

BREAKFAST—7:30 A.M.

Milk, 8 ounces (no sugar) after and with solid
 foods
 Cereal, $\frac{1}{2}$ cupful or more with some of the milk
 allowed. (No sugar)
 Dry crisp bread and butter, $\frac{1}{2}$ slice or so, in-
 crease gradually
 Egg yolk 2 or 3 times a week or oftener. Begin
 to add, gradually, the white of the eggs on
 the days meat not given at the noon meal.
 (See directions under eggs)

9 A.M.—Juice of orange and $\frac{1}{2}$ to 1 glass of water

DINNER—11:30 to 12

Meat or vegetable broths with rice or bread (24
 hours old) in it, 2 or 3 times a week
 Crisp bread and butter, $\frac{1}{2}$ slice or so
 Scraped beef, 1 to 2 tablespoonfuls (level) OR
 Cottage cheese, 2 or 3 level tablespoonfuls, OR
 Nut butter, $\frac{1}{2}$ to 1 level tablespoonful thinned

with milk or water, 2 or 3 times a week when meat is not given

Cleaned bone to gnaw on 2 or 3 times a week
Strained or puréed vegetables, 3 or 4 tablespoonfuls. (Potato and one other. Spinach, green string beans, cooked lettuce, carrots, etc.)

Spaghetti, macaroni or rice occasionally instead of potato

(When first molars are in [12 to 16 months], you can chop vegetables and meat instead of straining or scraping. Make him chew)

Fruit pulp, cooked or raw, 2 to 4 level tablespoonfuls

Milk, 4 to 8 ounces to drink

3:30 P.M.—Milk, 5 to 6 ounces

SUPPER—5:30 to 6 P.M.

Milk, 8 ounces

Dry crisp bread and butter

Cooked cereal, ½ cupful, some of the above milk in it

Stewed fruit, 2 to 4 tablespoonfuls

TABLE OF FEEDING FROM 1½ TO 2½ YEARS

(Calories, 1000 to 1250)

(See note over table for 12 to 15 months)

BREAKFAST—7 to 7:30 A.M.

Same as 15 to 18 months. *Add 1 to 2 half slices of partly crisped broiled bacon, 2 or 3 times a week when egg is not given

Any fresh or stewed fruit. Fresh preferably.

DINNER—12 M.

Same as 15 to 18 months.

Cooked vegetables, ½ cupful or more by two and one-half years. May have creamed soups instead of milk, or vegetable soups. Can give other tender meats (not over three or four

tablespoonfuls). Make him chew. No fried or greasy meats. The glandular organs such as sweetbreads, liver and brain are especially good on account of vitamins and high grade proteins. Can begin tender raw vegetables ground fine when back molars are in. Begin very small amounts and gradually increase to two or three tablespoonfuls or more by the thirty-sixth month.

Add simple desserts, such as custards, rice, corn-starch, tapioca, junket, etc.; simple cakes and cookies by the twenty-second month. NO CANDY

MID P.M. LUNCH

Milk, 5 to 6 ounces

SUPPER—5:30 to 6 P.M.

Same as 15 to 18 months

Cereals ready cooked can be given for a change when chewing teeth are in.

Milk toast or creamed toast, or creamed soups, for a change

Stewed fruit, $\frac{1}{4}$ to $\frac{1}{2}$ cupful (very little sugar)

(For menus for the older children, see Page 116.)

CHAPTER VIII

DIET AFTER $2\frac{1}{2}$ YEARS

THE diet you have been giving baby by the sixth month really contains most of the foods he should have until adult life. And if it were to continue as simple throughout childhood and even adult life, he would avoid much trouble probably.

You remember I told you that the diet which is best for the growing child has been proved to be best for the maintenance of health in the adult. In other words, milk and its products, whole-grain cereals—including breads—vegetables, especially the green-leaf vegetables, in liberal amounts; fruit and nuts, a small amount of meat, eggs and simple desserts should form the diet both of the adult and the child.

That does not seem to exclude much, does it? But let us see. Ordinary white bread, demineralized cereals, excess fat, greasy fried foods, rich and fancy pastries and candies, condiments, such as mustard and pepper, tea, coffee and alcohol, also would come in the list tabooed. You see, it is quite a list.

After the 15th month three meals a day are sufficient. Up to six at least, the heavy meal should be at noon, for a heavy meal at night often causes restless sleep and other disturbances.

At six years of age, when the child begins to go to school, he may have to take his lunch, and that will necessitate a little different arrangement of the

**A Good
Breakfast**

meals. Be sure that he has a good substantial warm breakfast before he goes to school. Get up a little earlier if necessary, so that he can have time to eat it. You may be benefited by going without breakfast—many adults are, especially if they are overnourished—but the child will not be. *A good breakfast is important.*

It is best to have the dinner in the middle of the day even now if possible, but if he hasn't time to come home and eat it without rushing, it is better to give a nourishing lunch and have the heartier meal at 5 or 6.

If he comes home for lunch, mothers, do have it ready so he won't have to worry about being late at school. This same advice applies to breakfast. You know worry doesn't help digestion.

If the heartier meal is given at night, an hour to an hour and a half should elapse before bedtime. If father doesn't get home until late, don't make the children wait for him. Serve them at 5:30 or 6. In many ways this is better anyway, for it gives you more of a chance to supervise them, and then gives you a restful period to eat in yourself without having to wait on them.

**Regularity
Important**

It is just as important for regularity in meals for the older children as it is for those under two years. No foods should be given between meals to the normal child except fresh fruit or fruit juices, and if these are given, *they should be given at a specified time*, and just as regularly as the meals. If it is found this lunch interferes with the appetite, it will have to be discontinued.

For malnourished children, mid-morning and mid-afternoon lunches are usually advised, so that they will get the necessary amount of food for a gain in weight without overeating at mealtimes. These lunches again

should be given at the same times each day. I give you some special directions for the malnourished child beginning Page 153.

The practice of letting children nibble at crackers, cookies, candies, bread and sugar, etc., at all times between meals is one of the chief causes of indigestion. It destroys the appetite for foods that should be taken at mealtimes, and thus may cause malnutrition.

FOODS THE CHILD CAN AND CANNOT HAVE

Whole-wheat bread (at least a day old) most of the time. For a change: corn bread, brown bread, popovers, Zwieback, Swedish health bread, whole-wheat crackers, etc. Any firm and crusty bread for jaw and teeth.

Breads

The hot fresh breads are not objectionable because they are hot, but because they are apt to be gummy and therefore will not be well masticated and may ferment in the stomach. Thin, crusty tea biscuits and popovers, etc., are not objectionable.

(Ordinary white bread is demineralized and devitaminized, and cannot be called the "staff of life" for that reason.) *Thorough mastication.*

Margarines, vegetable oils. (No growth vitamins.) All good in moderation, if plenty of whole milk is taken. Butter best fat on account of growth vitamin. Not over one level teaspoonful a meal up to 3 years. Gradually increase, but usually best not to exceed one level tablespoonful a meal.

Fats

All kinds. Those containing the bran and germ much preferred (oatmeal has the most iron and protein). Dried ready-to-serve cereals for a change.

Cereals

They have about one-half the energy or caloric value of cooked cereals. Remember that and serve twice as much. It is best to use no sugar on cereals, or if used, a very little. Serve with some hard bread to insure *thorough mastication*.

Condiments Mustard, pickles, vinegar, pepper, horse-radish, best omitted. Use lemon juice instead. It has vitamins and mineral salts and is nonirritating.

Drinks Milk in all forms. Milk is a food and must be sipped or taken with other foods (best warmed for the younger children); weak chocolates or cocoa or cereal coffees made with milk; fruit-ades and water (but mustn't be taken when food is in the mouth, to wash it down. This applies to all drinks). Never tea or coffee on account of its theine and caffeine, nor strong chocolates or cocoa on account of the theobromine (the same principle as theine and caffeine, all strong drugs). Never alcoholic drinks of any kind except under the physician's orders. Ice-cream sodas occasionally if pure and if taken slowly and if growth foods are not slighted.

PROTEIN FOODS

Eggs Egg whites are valuable for proteins. One a day usually enough for the younger children. (Don't always agree. See chapter on "Idiosyncrasies," Page 235.) Egg yolks, especially valuable for iron, phosphorus and vitamins and seldom disagree. May have one, or more, if necessary.

Eggs most any way but fried and greasy. *Thorough mastication*.

Meats

One ounce (the amount of meat on an ordinary lamb chop is about one ounce) up to about four years of age. Not much more than two ounces after that. Once a day is sufficient to give meat, if it is given. Sausages and greasy meats best omitted. The glandular organs—sweetbreads, liver, brain—especially good.

May boil, broil, stew, or bake meats (or pan-broil if very lean, so there will be no fat to cook out and scorch). For the babies, scraped—scrape with the grain with a silver spoon—then broil. *Thorough mastication.*

Fish

Fresh fish, same directions as meat. (As it is less stimulating, a larger portion can be served.) Be sure to remove bones for the younger children.

Dried meats and fish if soaked until the salt is removed, then cooked until soft, are not objectionable for a change. Oily, canned fish, such as sardines, are best omitted in children's diet. Any canned meat or fish should be cooked thoroughly before serving. If wanted cold, cook first, then cool. *Thorough mastication.*

Nuts

High in fat and protein, except chestnuts, which are mostly carbohydrates. Nuts may take the place of meat. Be careful not to give unground nuts before chewing teeth are in and they have been taught *thorough mastication.*

Cheese

Any mild cheese. Cottage cheese especially valuable and often preferable to muscle meats for protein. *Thorough mastication.*

VEGETABLES

All kinds, if properly prepared—that is, strained before the molars (chewing teeth) are in, and grated or chopped fine after, and until the child is taught to chew. (See page 149 for cooking.) The idea that certain vegetables could not be given to a child until three years, others at six, and so on, has been proved wrong. The strong aromatic vegetables, such as onions, cucumbers, if given raw may disagree. Navy beans may disagree. When giving vegetables or foods of any kind not used before, begin in small amounts and try them out. *Thorough mastication.*

FRUITS (See "Fruits," Page 254)

The same general directions given about vegetables apply to fruits. Best remove seeds and skin for all children, especially the younger. Special attention must be paid to see that the fruit is thoroughly sound—that is, not underripe nor too ripe.

Yes, we can have bananas! if they are thoroughly ripened and well masticated. For the younger children they had best be mashed and beaten. Baked bananas are very easily digested. There are three reasons that bananas are in bad repute. They have been given children before they were thoroughly ripened—the stage when the starch has not been converted to the fruit sugar which is more easily digested; they have been swallowed in chunks, and they have been eaten in too large amounts. Observing precautions I have given you, you can include bananas in the children's diet at any age after 9 months. *Thorough mastication.*

SOUPS

Thin soups made of vegetables and meat are good for the mineral salts, but have very little nourishment. They are good occasionally to make the children eat more bread, if that is necessary, and sometimes they stimulate the appetite. Beef essence and beef juices have more nourishment and mineral elements, and they also act as a stimulant.

Thick cream soups made with a foundation of milk are very nourishing and wholesome and can be given often. Serve soups with a bit of hard bread or crackers so as to insure *thorough mastication*.

DESSERTS

(Best to keep out of sight until growth foods are eaten. No sweets between meals.)

Fresh fruit is one of the best of desserts. Stewed fruits, canned or dried if fresh fruits cannot be obtained, are also good. Dates, figs, raisins, if thoroughly masticated, are good desserts on account of their energy value and iron.

Cornstarch, gelatin, blancmange; tapioca, rice and other cereal puddings; custards, junket; simple cookies or cakes; whole-wheat bread and jelly sandwiches; pure ice cream and water ices in small amounts, simple candy in smaller amounts. (After the 4th or 5th year.) Best omit pies and pastries made of lard and white flour, although if the proper proportion of growth and repair foods have been taken, an occasional piece of well-made pie won't kill him.

(No matter what the dessert, it is a good plan to have

a piece of fresh fruit at the end of the meal. It acts as a toothbrush and mouth cleanser.) *Thorough mastication.*

Read about some of the most important foods in Part IV, mothers.

CHAPTER IX

MENU PLANNING

I HAVE given you menus for children up to 2½ years. Now we will take up the menu planning for the children after that age.

You know from what I have given you that for all children of all ages we must supply complete proteins (those that have all the building elements), and mineral salts and vitamins to cover the growth and repair needs.

You know that we must supply sufficient energy foods to cover the needs of the internal and external and eternal energy of these frisking young human animals.

You know that the foods given them must be balanced to give the correct proportion of proteins, carbohydrates and fats, and that they must be of such a nature that the alkali mineral elements exceed the acid so as to maintain the normal slightly alkaline reaction of the blood and tissue fluids.

It sounds like a formidable task, doesn't it? It's not so formidable, mothers—in fact it's not formidable at all. I will show you how simple it is. I will give you a foundation upon which you can build your menus which can be guaranteed to build children. Here it is.

*BEST FOUNDATION FOR EACH DAY FOR EACH CHILD**(Also best for each adult)**PART I Protective Foods*

1½ pints milk, at least
1 full cupful of vegetables
(especially the green-leaf vegetables) Part of them raw
1 cupful of fruit, part fresh if possible

PART II Energy Foods

Cereals, including whole-grain breads. Fats in the form of butter, cream, egg yolks, and nuts.

You will give your child other foods besides these I have listed, but if he has Part I as the minimum basis for every day, we can be pretty sure the protein, mineral elements, and the vitamins will largely be taken care of; and, if the energy foods are properly chosen, that there will be a preponderance of alkalizing foods in the diet.

The amount of the energy foods of the basic diet, or Part II, will depend upon the age, activity, etc. (I will explain this later under the amount of food needed per day.) Remember that the child is going to need a lot of good energy foods. However, a large share should come from the ones I have listed. If he has those in sufficient amounts as a basis, they will help supply vitamins and minerals and proteins as well as furnish energy.

If you see that he gets the proportionate part of the protective foods for each meal, he will automatically stoke up his little tummy with sufficient energy foods, if he is normal. If he is undernourished or overnourished, you may have to do a little "seeing" about his energy foods also.

Wood-Comstock, in her most interesting and helpful book, "The Home Dietitian," has called milk, vegetables, fruit and cereals, "The Food Quartet." They sing a merry song, this Food Quartet! Notice that they take up practically the whole of our program for the day.

Now let us recall the Food Sextet, the larger elemental food group from which the Quartet is made, and see what part each member of that has to play on our menu program.

If he has a pint and a half to a quart of milk a day, served as a drink and in simple custards or sauces, or cooked in a cereal, he will have 110 to 160 calories in proteins right there, because there are approximately five calories of protein in an ounce of milk. The milk will furnish so much protein, and that of the very best kind, super-complete, that it will be a safeguard for his protein needs.

**Proteins
(Growth and
Repair Foods)**

If he has from three to six slices of whole-wheat bread, this will furnish 48 to 90 calories more, for in a full slice of whole-wheat bread half an inch thick there are sixteen calories of protein.

If he has one to two eggs, or one to two rounding tablespoonfuls of cottage cheese, or an ounce or two of lean meat or fish, or nuts or nut butter, he will have from 25 to 75 calories more of protein in these. Other foods will add a little store of protein also.

All of these approximate from 200 to 325 calories of protein a day. This is about what an adult needs, and it's all right, for a child needs more in proportion to his weight than an adult. You will remember from our chapter on proteins that a child needs considerable extra protein for his growth. If there should be a little excess above the minimum requirements, it will be utilized as an energy food.

This shows you that if you have a minimum of three glasses of milk a day, whole-wheat bread, and one other relatively high-protein food, you need not worry about the protein nor the kind of protein.

**Carbohydrates
(Starches and
Sugars;
Energy Foods)**

With the protective foods, mothers, you must see that whole-grain cereals, including bread, macaroni, and similar foods, potatoes, and some wholesome simple desserts, including sweets such as molasses, honey and jellies occasionally, are furnished your child for his energy foods. He is going to need a lot of them. The amount we'll talk about later. Be sure he gets the proportionate amount of the protective foods before he fills up on the energy foods.

**Fats (Energy
Foods)**

Butter, on account of its growth vitamins as well as its energy value, is the chief free fat that should be given children. Salad oils, especially the olive oil, in small amounts on salads are not objectionable. Butter up to a level tablespoonful for each meal, with that served on the vegetables is sufficient for the older children. Cream, egg yolks, bacon fat, olives and nuts will furnish them more good fat.

Reread the chapter on fats, mothers.

Reread a little more, mothers, on the vitamins. **Vitamins and Mineral Elements**
They are very important.

Just here we will say that the vegetables, especially cabbage, tomatoes, spinach and other green-leaf vegetables; fruits, egg yolks and butter and milk, are all very high in the vitamins and mineral elements. You know their place in the menu.

The amount of water needed depends upon the amount of milk and other fluids, watery fruits and vegetables consumed, and the season, as I have explained in the chapter on them. Children need a large amount of water. From one to two glasses, depending upon the factors I have spoken of, should be taken regularly between meals. We have a chapter on water, too. Did you read it? Better.

Water

We have reviewed each member of the famous Food Sextet, and have more thoroughly impressed on our minds the place of each in the diet. Now, we must talk about the total amount of all of them together that we will have to have for each day.

The Amount of Food Needed per Day

The daily amount of food needed by a child or adult depends upon age, size, weight, activity, temperament, season and, possibly, sex. The unit we use for measurement is the calorie, and as I have explained in the chapter on calories, it has been determined by many experiments how many are needed daily per pound of body weight for all ages. Now let us discuss each factor a little.

The most rapidly growing period of life is the first year, when the infant usually doubles its birth weight by the fifth month and trebles it at the end

Age

of the year. So during this period, more calories of food per pound of body weight are needed than at any other period.

At puberty, the beginning of adult life, and three or four years after puberty (adolescence) there is also a very rapid growth, and the food intake at this period must be very large to cover the needs.

One of the most notable studies made upon the foods needed by schoolboys from twelve to seventeen years old was that made by Gebhardt. He studied the boys at St. Paul's School, Concord, for a year. He found that the amount of food consumed by these normal, very active, healthy boys was enormous, especially during the very cold winter. It was around 5000 calories per day per boy at that time! Over 50 per cent more than needed by the average adult.

Du Bois found in boys from twelve to thirteen that their food needs during complete rest was seventy-five per cent more than that of normal adults.

**He Eats
More Than
His Father!
'Sall Right**

Those of you who have boys or girls at these ages don't need Gebhardt and Du Bois to tell you about their enormous appetites. How many times have you said they were eating you out of house and home? You will be comforted to know that this is not abnormal; it really represents a physiological need during this very active growing period of adolescence.

Needless to say, children will overeat for their needs at times, especially of foods they like—particularly if they are rapid eaters and do not masticate their food sufficiently—and they suffer for it. This, of course, should be discouraged. If their enormous appetites lead to overweight, you can be sure that they are overeating, and this also must be discouraged. It rarely happens

that overeating in general tends to underweight, so you don't need to worry about that.

In old age there is a slowing down of the internal as well as the external activity of the body, so the food requirements have to be lessened proportionately on account of this. Sherman states that from 10 to 20 per cent, or possibly 30 per cent, reduction from that needed in early middle life should gradually be made in the food intake of the aged. I bring this in because I remember I have "and Adults" tacked onto my title

**Older
Children**

The larger the size, the more food needed. Do not confuse size with overweight, for the rule for that is just the reverse. By size we mean the general frame. A large-frame baby will need more than a smaller-frame baby of the same age. The same principle applies to children and adults.

Size

The normal baby the first year will require on an average of 45 calories per pound per day. If it is underweight, it will require from 50 to 60 calories per pound per day, and if it is overweight it will require as low as 40 calories per day. This same principle of fewer calories per pound for overweight and more per pound for underweight applies throughout infancy, childhood and adult years.

Weight

Obviously the very active infant, child or adult needs more food to keep well and at normal weight than the inactive, just as an auto which is being run all day long will need to have its gas tank refilled oftener than one not run so long.

Activity

Temperament The temperament often decides the activity, so these are bound together more or less. A phlegmatic, slow-moving child or adult will need much less food than the quick-moving, superactive nervous type.

Season In winter and cold climates more food is needed than in summer because there is an increased rate of oxidation in the body in response to the cold.

Sex Boys the same age and weight as girls usually eat more; this is probably because they are more active. The same is true of men and women generally. Women during pregnancy and lactation have their food needs increased, but not nearly so much as is commonly supposed. During menstruation there is an increased need for food, also, unless the activities are lessened.

(The tables giving the approximate number of calories needed daily you will find on Page 60.)

CHAPTER X

MENU PLANNING (CONTINUED)

By planning your menus ahead, mothers, you will not only be able to have them balanced better but you will be able to market much more efficiently and save time in the preparation of meals.

When you have a roast, plan to have baked potatoes and baked apples or other fruits, or a baked pudding. When you prepare your vegetables, prepare enough so that you can have some left over for a salad or a cream soup the following day.

If you run your household on the budget plan, allowing a certain amount each month for food, clothing, rent, education, charity, amusement, doctor bills, etc., allow a liberal amount of money for the protective foods, for each child and each adult. By doing this you are going to be able to save on those doctor bills. Doctor bills are high (they have to be on account of the many years of preparation a scientific physician of to-day has to pay for). When your child is ill you willingly spend any amount for his recovery. Think of this and spend more money, if necessary, to better advantage in keeping him well. You not only will save money in this way, but much sorrow and suffering.

In planning the menus for the younger children, have milk, cereals (including bread) and fruits for the morning and evening meals, and a protein dish and vegetables for the basis of their heavier noon meal. If you cannot give all of the minimum requirements of vegetables at noon, some may be given in the evening meal or the

morning meal, but it will simplify your menu planning if you think of fruits for the evening and morning meal, and vegetables for the noon meal.

Many vegetables and fruits have similar properties, so can be used interchangeably to a certain extent. So when you cannot get fruits, give more vegetables, and vice versa.

At the dinner when potatoes or rice, macaroni, spaghetti or noodles are served in liberal quantities, bread need not be served, except a small piece of crust or dry toast or hard cracker for exercise for the teeth and jaw muscles and to use to push the food on the fork or spoon. (Too much bread eating is sometimes the cause of not enough of the protective foods being taken.)

PRECAUTIONS

1. Serve the meals at regular times.
2. See that the proper proportions of the protective foods and whole-wheat bread for each meal are consumed *before desserts are allowed*.
3. Nothing between meals except water and one lunch of fruit; or milk for the undernourished child.
4. Insist on thorough mastication and give some hard food every meal. (See "Teeth," Page 81.) Have dry toast eaten with the cereals or sprinkle with grape-nuts to insure their being chewed also.
5. Have the mealtime a happy time. This is important for good digestion, as well as peace.
6. Insist on washed hands and faces before eating.
7. Do not permit hurried eating to get back to play. On the other hand, do not permit dawdling and playing with the food.
8. Have the child seated comfortably at the table. If

you haven't a special chair, place something on the chair, so as to bring the child's elbows nearly to the top of the table. Provide something for a foot rest.

9. Don't permit the child to play or work so hard before meals that he is too tired to eat.

10. Serve the food attractively and teach and insist on good table manners—if they are not learned in childhood they are seldom acquired. A few suggestions: Sit erect. Butter small portion of bread at a time, not a whole slice. If necessary to push food on the fork or spoon, use a bit of bread, never the fingers; take soup from the side of the spoon not the tip. Take only enough ice cream or other food on the spoon for one trip to the mouth, not enough to lap the top off and come again! The spoon should be left in the saucer and not in the cup. Small mouthfuls; chew with mouth closed; noiseless eating, correct use of knife and fork; no reaching in front of others; no conversation on disagreeable subjects; "Please" and "Excuse me, Please," etc., etc.

The menus I give you can use as a guide, **They Are Good for the Whole Family** mothers. When you haven't the food that is suggested, substitute something which is similar; for instance, one leafy vegetable for another; one meat for another. Remember, nothing can take the place of milk, so if you can't get fresh, use canned or dried milk.

After the children begin to go to school, if they have to take their lunch, the midday meal can be used for the evening meal.

I have not given the menus for the different ages after two and a half years, for that would give you the impression that if you have children of different ages you have to have different menus and cook different foods, and that is not true. After the chewing teeth are in,

a food that is wholesome for one age is equally wholesome for another. The older child will take larger amounts. (Perhaps!)

In the menus which I give you, you will see that I have worked in for each day the minimum allotment of the protective foods. You must do the same.

Each child, overweight or underweight, should have this minimum allowance of protective foods. It is the energy foods that have to be decreased for the overweight child; and the energy foods, and the milk and egg yolk of the protective foods can usually be increased for the underweight child if his underweight is caused by too little food—and it very often is. In these cases count calories! See by the tables (Page 61) the approximate amount they should take, and check up by the calorie food list. Reread the chapters on the malnourished child and the fat child if necessary, mothers.

CHAPTER XI

SAMPLE MENUS FOR CHILDREN (EQUALLY GOOD FOR ADULTS)

SUNDAY

BREAKFAST. Orange, 1.
Milk, 10 ounces
Oatmeal. Part of above milk on it, with very
little sugar, if any
Whole-wheat toast, crisp throughout, and butter
Egg, coddled or poached

DINNER. Baked or stewed chicken, OR nut and cheese loaf
Baked potato with butter or chicken gravy
Cooked spinach, $\frac{1}{2}$ cupful or more
Raw carrots, grated or chopped very fine (served
with a little boiled dressing), $\frac{1}{4}$ cupful or more
Dessert: Apple Indian pudding. (See recipe).
Educator cracker
Water, milk or fruit-ade to drink

Afternoon

Lunch 1 apple or pear, or other fruit in season

SUPPER. Whole-wheat bread and butter
Cooked vegetable, if liberal amount is not taken
at noon
Apple sauce, $\frac{1}{2}$ cupful
Milk, 8 ounces

NOTE:—If you haven't the carrots for this meal, save a little of the raw spinach, and serve that as a salad. Save some of the cooked spinach for soup to-morrow. If more convenient, you can cook enough of your cereal for two days if you have a cold place

to keep it. Serve the second day with a few dates or soaked prunes, or seedless raisins in it for a change. Be careful to see that only the child who chews well has these additions.

MONDAY

BREAKFAST. Dish stewed prunes or fresh fruit in season
Milk, 8 ounces
Oatmeal, cream; with a few dates or raisins in cereal
French rolls, toasted—butter
Crisp bacon, 2 or 3 half slices

DINNER. Cream-of-spinach soup, 6 to 8 ounces. (See recipe)
Minced chicken and egg. Mince the chicken meat left over from yesterday, add one chopped cod-dled egg, with some of the white sauce saved from the soup before the spinach is added. If meat is not used, add 1 tablespoonful of peanut butter to the white sauce and egg
Mashed potatoes
Cooked carrots, diced, served with melted butter; $\frac{1}{2}$ cupful or more
Raw shredded spinach or lettuce salad, $\frac{1}{2}$ cupful or more, served with a little lemon juice and honey dressing: (3 tablespoonfuls lemon juice to $\frac{1}{2}$ tablespoonful honey—olive oil if desired)
Dessert: Piece of crisp toast with honey, jelly or fruit sauce
Water, milk or fruit-ade to drink

Afternoon

Lunch. 100 calories fresh fruit in season

SUPPER.

Shredded-wheat biscuits
Milk, 8 to 10 ounces
Cooked vegetable, if liberal amount not taken at noon
Baked apple, pear or banana

TUESDAY

BREAKFAST. Baked banana

Milk, 8 to 10 ounces

Whole-wheat or cracked-wheat cereal

Popovers and butter. (See recipe)

DINNER.

Vegetable broth. (See recipe)

Roast lamb or beef, 1 slice, OR the same amount of proteose vegetable roast (see recipes), served with lemon-parsley-butter sauce

Steamed rice. (Natural brown, if possible)

Stewed celery or asparagus, $\frac{1}{2}$ cupful or more, with cream sauce thickened with egg yolks. Save the tender stalks of celery for to-morrow. Put the tops, including the leaves and the outer tough stalks in the soup stock

Raw beet salad, $\frac{1}{4}$ cupful or more grated, on lettuce

Dessert: Crisp reheated popovers with a little preserve or jelly, or a hard molasses or sugar cookie with a little jelly

Water, milk, or fruit-ade to drink

Afternoon

Lunch.

100 calories of fruit

SUPPER.

Grape-Nuts—crisped in the oven if necessary

Milk, 8 ounces. Add milk to the cereal a little at a time so not to soften too much. See that it is thoroughly masticated

Cooked vegetable, if liberal amount not taken at noon

Fruit sauce—apple, pear, prune, apricot, etc., $\frac{1}{2}$ cupful

WEDNESDAY

BREAKFAST. Apple or other fresh fruit

Milk, 8 to 10 ounces

Cracked-wheat cereal, with a few seedless raisins
or a few prunes in it
Whole-wheat bread, toasted—butter
Crisped bacon, 1 to 2 half slices

DINNER.

Lamb or beef croquette, OR ribbon loaf (see recipe). Grind the meat left over from yesterday. Mix with a little white sauce, roll in dried crumbs and bake in oven
Creamed potatoes *au gratin*
Green peas, or string beans, $\frac{1}{2}$ cupful or more, served with a little butter
Celery and apple salad on lettuce
Dessert: Frozen custard (see recipe), with a hard cracker or piece of hard toast with thin spreading of jelly
Water, milk, or fruit-ade to drink

Afternoon**Lunch.**

100 calories of fresh fruit in season

SUPPER.

Creamed toast. (See recipe)
Cooked vegetable, if liberal amount not taken at noon
Stewed fruit or baked apple (very little sugar)
Water, or fruit-ade to drink; or milk, if full allowance not taken during the day

THURSDAY

BREAKFAST. Melon or other fresh fruit in season
Milk, 8 ounces—part may be used on the cereal, part may be made into weak cocoa to drink
Cereal, Pettijohns
Egg, poached, coddled or scrambled
Whole-wheat bread, toasted—butter

DINNER.

Vegetable or meat broth
Macaroni, spaghetti, or similar food, *au gratin*.
Cook in milk and sprinkle layers liberally with grated cheese, and bake

Beet, dandelion or turnip top greens, $\frac{1}{2}$ cupful or more

Raw cabbage, ground, with boiled dressing, $\frac{1}{4}$ cupful or more

Dessert: Junket and hard cracker

Water, milk, or fruit-ade to drink

Afternoon

Lunch. 100 calories of fruit.

SUPPER.

Cream-of-vegetable soup

Well-toasted whole-wheat bread

Cooked vegetable, if liberal amount not taken at noon

Stewed seeded or seedless raisins, dates or figs

FRIDAY

BREAKFAST. Thoroughly ripe banana

Creamed toast with raw egg yolk stirred in the cream sauce. If not a full 8 ounces of milk used in the cream toast (for each child), serve the balance as a drink

Crisp bacon, 1 to 2 half slices

DINNER.

Beef or vegetable broth

Baked, steamed or broiled fresh fish (white fish best for younger children—remove bones), serve with lemon-parsley-butter sauce. OR

Cottage cheese and nut roast. (See recipe)

Creamed spinach, molded in cup

Baked or boiled potatoes (baked or boiled with skins on) and butter

Combination raw vegetable salad. Grated beets, cabbage, celery, turnips, etc., served with a little mayonnaise and whipped cream dressing (half and half—delicious). Save the tops of the vegetables for greens to-morrow.

Dessert: Prune whip of the white of egg left from morning meal, and 6 stewed prunes.

Serve with whipped cream or plain cream

Educator cracker

Water, milk, or fruit-ade to drink

Afternoon

Lunch.

100 calories fresh fruit in season

SUPPER.

Browned rice (see recipe) and milk, or whole-wheat bread and milk

Cooked vegetable, if liberal amount not taken at noon

Swedish health bread and butter

Baked pear

Milk or weak cocoa to drink

SATURDAY

BREAKFAST. Fresh fruit in season, or stewed or canned fruit

Milk, 8 to 10 ounces

Oatmeal

Toasted Triscuits and butter. (See recipe)

Scrambled egg

DINNER.

Cream-of-corn soup

Fish timbales. Make from fish left over from yesterday. (See recipe.) OR

Legume roast

Baked, boiled or mashed potatoes with butter

Boiled greens—spinach, beet tops, dandelions, Swiss chard, etc., $\frac{1}{2}$ to 1 cupful

Salad dessert: Fruit salad—any kinds of fresh fruit served with a dressing of lemon juice and honey, whipped cream on top—apples, oranges, pineapples, and bananas are a good combination.

Water, weak cocoa or fruit-ade to drink.

Afternoon

Lunch.

100 calories of fresh fruit

SUPPER.

Corn bread and butter

Milk, 8 ounces

Cooked vegetable, if liberal amount not taken at
noonStewed fruit, $\frac{1}{2}$ cupful

CHAPTER XII

THE SCHOOL LUNCH

IN many places the schools are now serving noon lunches, or at least some hot dishes that can be used with the food brought from home. If that is true in your locality, it will simplify matters for you. If it isn't true, can't you get the Parent-Teacher organization interested in making it true? A hot lunch, or at least a hot nourishing soup or drink is extremely desirable for children who cannot go home at noon. Send to the United States Department of Agriculture and ask for Farmers' Bulletin No. 712 on the "School Lunch." That will give you some valuable suggestions.

If children are given money to buy their lunches from the near-by stores, they must be instructed to buy wholesome sandwiches and milk before candies, ice creams, etc., are indulged in. It will be well to investigate what kind of foods are sold and the method of handling.

THE BASKET LUNCH

If the lunch is carried in a basket or pail or box, it must be one that can be scalded very often, so the simplest type of boxes and baskets should be used. The metal boxes that can be folded when empty and strapped with the schoolbooks are the most convenient. Three or four small holes can be punched in these to let in the air. Paper napkins and oiled papers can be obtained at very low prices, and food should be wrapped in these, and

two extra napkins included—one to put over the desk or lap and one to use for the hands and mouth.

Jelly tumblers with covers and small jars with screw tops can be used for the semi-solid foods.

The basis of the school lunch is a good sandwich. This can contain the protein part of the meal, and at times the sweet part when filled with jelly, sweet fruit, etc. Whole-wheat bread should be used most of the time, with brown bread, French rolls, corn bread, raisin or nut bread for a change.

Cut the sandwich in two, diagonally, or lengthwise, and wrap each article separately, putting the things least likely to crush in the bottom of the basket.

When milk cannot be taken for the lunch, see that the child gets its minimum requirement for the day—1½ pints—in the other two meals.

SUGGESTED LUNCHESES

1. Whole-wheat bread sandwiches, liberally buttered, with a slice of tender meat and two or three leaves of lettuce or spinach with a little lemon juice on them.

Whole-wheat hermits.

Baked or fresh apple—eat last. It cleans the teeth.

2. Three-tiered sandwiches made of thinly sliced whole-wheat bread. Between two of the layers, peanut butter or chopped nuts, and the other two jelly.

A good-sized raw tomato, or cup of stewed tomatoes.

Educator crackers.

3. Sandwiches made of Boston brown bread and whole-wheat bread, filling made of cottage cheese mixed with a little strained tomato; place a lettuce leaf over this with a little mayonnaise or boiled dressing.

Cookies.

1 orange or other fresh fruit—eat last.

4. Crisp rolls with the centers taken out, filled with chopped meat or fish moistened with a little melted butter or cream sauce or mayonnaise.

- Two or three stalks of celery—eat part of it last.
Rice pudding with raisins.
5. Nut bread and butter sandwiches.
Some tender raw carrots.
Gingerbread.
Apple, pear, peach or other fresh fruit.
6. Whole-wheat bread-and-butter sandwiches.
Deviled eggs.
Radishes, or small amount of other raw vegetable.
A glass of junket.
7. Bean or green-pea or lentil sandwich. Press vegetables through a sieve; add a little lemon juice and melted butter.
Use whole-wheat bread.
One cupful of chopped raw spinach, or other raw vegetable moistened with a little mayonnaise, boiled, or lemon and honey dressing.
Fresh fruit, nuts.
8. Salad sandwiches.
Chop tomato, celery, carrots, lettuce, or any other raw vegetables fine, mix with a little mayonnaise or boiled dressing and place between whole-wheat bread, or scraped-out French roll.
Cup custard.
Almonds or peanuts.
9. Chopped nuts and ripe olive sandwich.
Mix ground nuts and ripe olives with a little melted butter or salad dressing, put between whole-wheat bread; leaf of lettuce.
Three or four dried figs (thoroughly washed), apple, pear, orange, or other fresh fruit.
10. Cream, Swiss, or other cheese sandwich, made of whole-wheat bread.
Well-washed dates or figs stuffed with nuts, or some raisins and nuts.
Apple, pear, orange or other fresh fruit.

Instruct the children to wash their hands and faces before eating, and not to exchange spoons or other utensils with the other children.

CHAPTER XIII

RECIPES

THERE are many modern cookbooks on the market which emphasize the importance of cooking to conserve the vitamins and the mineral elements, and I am going to take it for granted that you have at least one of these.

However, I am going to give you a few general instructions, and a few of the recipes I have tested.

Your cooking utensils should include a steamer, one or two casseroles and a fireless cooker. You can make a homemade fireless cooker with a hinged box, some excelsior and some asbestos paper, very inexpensively.

Vegetables cooked in the casserole are usually served in the casserole, and there isn't the loss of material from pouring from one dish to another.

If you can afford it, have a pressure cooker which confines the steam until it reaches a high pressure and thereby cooks food tender in a very much shorter time.

BREADS, TOASTS, ETC.

HOME-GROUND WHEAT BREAD

(Food Thrift Series No. 2 United States Department of Agriculture.)

- 3 cups wheat meal (or 2 cups wheat meal and 1 cup
white flour)
- 1¼ cups lukewarm water
- ½ cake compressed yeast
- 1 level teaspoonful salt

1 level tablespoonful sugar

1 level tablespoonful shortening if desired

Mix the yeast with a small amount of lukewarm water; dissolve the sugar and salt in the rest of the water; mix the two solutions and add all to the meal (or meal and flour). Mix thoroughly so that all the liquid is incorporated in the mass, cover and set in a moderately warm place to rise. After about two hours, or when risen, add the shortening and knead well, adding a little meal if necessary, until a smooth, elastic dough has been formed. Cover and set aside again to rise for an hour. Knead lightly, form into a loaf, place in a greased pan; allow to rise until just double in bulk (this is only two-thirds of the usual rise in the pan when white bread is made). Bake slowly for three-fourths of an hour.

CORN BREAD WITHOUT BAKING POWDER

("Food and Cooking"—Anderson.)

1 cup cornmeal

2 tablespoonfuls flour

1 tablespoonful sugar

2 eggs (separated)

1¼ cupfuls boiling water

1½ teaspoonfuls salt

Sift dry ingredients together, stir smooth with one cup of boiling water. With the remaining one-fourth cup of water, make a batter that will barely drop from the spoon. Beat eggs separately. Fold yolks into whites and turn them into the batter, folding them in with a wire batter whip; mix lightly, yet thoroughly. Pour into oiled granite pan and bake in a moderately hot oven twenty or thirty minutes. Number of servings, six.

WHOLE-WHEAT POPOVERS

- 1 cup milk
- 1 cup sifted whole-wheat flour
- $\frac{1}{2}$ teaspoonful salt
- 1 level teaspoonful sugar
- 1 egg

Put all of these ingredients in a bowl together and beat with an egg beater until thoroughly smooth. Pour the mixture into hot well-greased gem pans and bake in a moderate oven three-quarters of an hour. They should rise and form large crisp shells with no centers. These can be given to children.

Popovers can be filled with custard sauces, stewed fruit or a little jelly, or whipped cream, and served as a dessert.

WHITE SAUCE

- 2 level tablespoonfuls butter
- 2 level tablespoonfuls flour
- 1 cup whole or skimmed milk
- $\frac{1}{2}$ teaspoonful salt, scant

Melt the butter gently; take off the fire and stir the flour in until thoroughly mixed. Pour over this the cup of cold milk all at once, place back on the fire and stir constantly until thoroughly blended and cooked.

This is a good basis for cream soups, and it can be used to mix with flaked fish, minced meats and vegetables when they are served creamed. If you like the sauce thicker than this proportion of flour will make, add a little more butter and flour. (Or egg yolk. This makes it richer.)

White sauce can also be made by scalding the milk

first, mixing the butter and flour together and adding to the scalded milk. If the mixture of butter and flour is put on a wooden spoon, it will not melt off the spoon, but just off the top, and will be more gradually blended.

OVEN TOAST (ZWIEBACK)

Cut stale bread in slices. Brown slowly in oven until crisp all through.

PLAIN CREAM TOAST

Pour white sauce over hot oven toasted bread. Do not moisten the bread for the children who have their anterior molars—first chewing teeth—in, for it will give them jaw exercise.

EGG CREAM TOAST—No. 1

Add a little hot milk to the white sauce to thin, scramble one egg; add the white sauce, and pour over the toast. One egg to one cup of white sauce is a good proportion.

EGG CREAM TOAST—No. 2

Make a plain white sauce; add the chopped whites of eggs, pour over oven toast; over this grate the hard-boiled yolks.

NUT CREAM TOAST

White sauce with one tablespoon of nut butter to the cup. Pour over oven toast.

BRAN

The outer covering of the bran consists of cellulose which is insoluble in most people's digestive juices, and because of this, it helps form a bulk in the intestines and thus is good for constipation. The bran and the germ of the grain contain most of the mineral salts and vitamins, so bran is not only good for constipation, but it is good for a supply of minerals and vitamins, especially Vitamin B (see "Vitamins," Page 22).

For children and adults who are constipated, one to three tablespoons of bran taken in the cereal, or stirred in water or milk is an exceedingly good remedy.

BRAN EXTRACT

Bran soaked over night in enough water to cover it, and then slowly steeped for two or three hours. This will draw out most of the mineral elements. Drain the water off.

A prominent baking company of New York is now making a pure white fine-grained bread, of white flour mixed with bran water, some powdered germ of the wheat and powdered milk (of course the exact proportions are a trade secret). Rats and mice will grow and thrive wonderfully on an exclusive diet of it, and they die in a short time on an exclusive diet of ordinary white bread. I understand this company is going to put the powdered wheat germ on the market. This is a suggestion for those of you who do not like dark breads.

BRAN-AGAR JELLY

1 cup bran
1 pint water
1 tablespoonful agar
 $\frac{1}{4}$ teaspoonful salt

Put all together and simmer slowly until the agar is dissolved. Pour into a shallow pan and allow to solidify. Serve sliced as a cereal with milk, or cream and milk, or dice and serve with ordinary cereal for cases of constipation. (Get the non-medicated granulated agar at the drug store.)

AGAR SALAD

Cover three level teaspoonfuls of agar with two cups of water and let stand overnight. Place over the fire, bring to a boil and boil five minutes. Remove from the fire, let stand fifteen minutes; add two tablespoons of lemon juice, one cup of diced oranges, one cup of diced apple, one cup of diced celery, and half a cup of chopped walnut meats. Mix well, fill molds with the mixture, stand in a cool place one hour, unmold on lettuce lined plates and serve with a cream salad dressing.

SCOTCH BROSE

(Good for constipation. Recommended in simple goiter, auto-intoxication and acidosis. See Page 207.)

RICE COOKED IN MILK

(When it is impossible to get the children to take all the milk that they should have, or when it is necessary to

increase the food value so that more calories are taken, cook cereals in milk or skim milk. They have a much richer flavor cooked in this way.)

- 1 quart milk to
- 1 cup rice (get unpolished rice if possible)
- 1 teaspoonful salt

Wash the rice thoroughly in several waters, drop slowly into the hot milk; add salt. Cook rice until the grains are soft, but not mushy. Remove the lid from the double boiler during the last part of the cooking so the grains will remain separate.

This rice can be served as a vegetable with the protein part of the meal—the meat, fish, eggs, etc.—or it can be served with grated cheese in liberal amounts as the protein dish itself, or it can be served with cream or syrup or crushed fruit as a dessert.

BROWNED RICE

Put rice in a shallow pan and bake in a moderate oven until golden brown. Stir occasionally. Now cook in a double boiler until tender in milk or water. Serve with cream or milk. This browning dextrinizes the starch and makes it more easily digested.

MEATS

BEEF ESSENCE

Put one pound of finely chopped lean beef, with a little salt, in a glass fruit jar with a tight cover. Place it in the oven or steamer or on the top of the stove in a pan of water and cook four or five hours.

BEEF JUICE

Remove all fat and gristle from half a pound of lean beef; broil over a clear fire from six to eight minutes; cut the meat into small pieces and squeeze out the juice with a meat press or lemon squeezer. Add salt. When reheating beef juice or essence put into a cup and set in hot water so it will not coagulate.

PAN GRAVIES

After meats are roasted, there is a brown essence in the pan which contains some of the mineral matters and flavoring of the meat, as well as the fat which has cooked out. If all of the fat is poured off it may be used on the potatoes and vegetables.

Pour off all of the fat, because this free fat is very apt to be indigestible.

THICKENED MEAT GRAVIES

If you desire the meat gravies thickened, pour off all of the fat except just enough to blend with sufficient flour to thicken. One tablespoon of flour and a cup of hot water or milk is a good proportion. The flour can be browned a little in the hot fat, *not scorched* fat.

Gravies made in this manner are not unwholesome for children. It is the gravies that have free fat floating on the surface that are indigestible both for children and adults. If a little yeast extract is added, the gravy is enriched not only in flavor but in Anti-neuritic Vitamins. (See "Vitamins," p. 22.)

COOKING MEATS

Meats for soup should be put on in cold, unsalted water and cooked very slowly for several hours.

Boiled meats and stewed meats should be put on in boiling water containing a slight amount of salt.

Meats for children had best be broiled, boiled, baked or stewed. If they are lean they can be pan-broiled—that is, on a hot pan, with no fat.

FISH TIMBALES À SURPRISE

Flake cooked white fish, mix stiff with a little white sauce and a few bread crumbs so that it will not separate. Grease the timbale or patty pans well, line with the fish mixture about half an inch deep; place in the center some cooked salmon, pour over a little white sauce and place a layer of the white fish mixture on this. Put the timbale or patty pans in a pan of hot water and bake until brown on top and thoroughly heated throughout.

(If you use canned fish, bring to a boil for two or three minutes before mixing the timbales.)

Serve with white sauce.

MEAT SUBSTITUTES

RIBBON LOAF

(Washington Sanitarium.)

1 cup navy beans
1 cup pink or kidney beans
1 cup evaporated milk
Salt

Cook beans separately till tender and quite dry. Salt while cooking. Rub through a colander. Add one-half cup of evaporated milk (or cream) to each kind of beans. Place beans, in alternate layers, in a pan and brown slightly in a moderate oven.

Serve with butter-parsley-lemon sauce.

HOMEMADE PROTOSE

("Home Dietitian"—Wood-Comstock.)

- 1 cup peanut butter
- 1 cup mashed beans
- 2 cups water (or, better, potato water or other vegetable broth)
- 1½ tablespoonfuls cornstarch
- 1 teaspoonful chopped onion
- Pinch of sage
- Salt to taste

Mix ingredients thoroughly, and steam in double boiler three hours, stirring occasionally. Let cool. Run knife around edge and turn out. Cut in slices. It may be served cold with tomato sauce or used in any receipt calling for protose. This will make about one and one-half pounds of protose and twelve servings.

COTTAGE CHEESE AND NUT ROAST

(Food Thrift Series No. 2, United States Department of Agriculture.)

- 1 cup cottage cheese
- 1 cup chopped English walnuts
- 1 cup bread crumbs
- 2 tablespoonfuls chopped onions
- Juice of ½ lemon
- Salt to taste

Cook the onion slowly in a little water until tender. Mix the other ingredients and moisten with the water in which the onion has been cooked. Pour into a shallow baking dish and brown. Number of servings, ten.

NUT AND CHEESE LOAF

- 1 cup grated cheese
- 1 cup chopped nuts
- 1 cup bread crumbs
- 1 cup chopped sweet pepper
- 1 well-beaten egg
- 1 tablespoonful melted butter
- A little grated onion (if you like it)

Brown the crumbs, add the melted butter and other ingredients, the egg last. Add a little milk if too dry. Bake in a shallow pan until crisp and brown. Serve with cream gravy and tomatoes. If you do not like the green pepper, use some other vegetable such as celery, mushrooms, cucumber, etc.

SPINACH CROQUETTES

- 1½ cups boiled spinach
- 1 chopped hard-boiled egg
- 1 egg, well beaten
- ½ teaspoonful salt

Chop the drained spinach. Add the chopped and the raw egg. Mix thoroughly, make into cakes, dip in bread crumbs and brown in butter in the oven. Serve with onion sauce. (One cup of chopped boiled onions to a cup of white sauce.)

SOUPS

POTATO-SOUP STOCK

(“Home Dietitian”—Wood-Comstock.)

- 5 or 6 large potatoes
- 2 or 3 onions (preferably red)
- 2 quarts cold water

Scrub thoroughly and cut up without paring potatoes or removing outer onion skins. Let cook slowly until done, adding more water if necessary. Press through a colander or strainer. The potato broth and purée, of which there will be about two quarts, may be used as a basis for other soups, tomato, corn, bean, etc.

In the making of this soup stock there may be cooked with the potato and onion any other vegetables, as carrots, tomato, cabbage or lettuce leaves, celery tops, etc.

A cream-of-potato soup can be made from this stock by adding one pint of evaporated milk. Flavor with chopped parsley or thyme.

CREAM OF TOMATO SOUP

(Wood-Comstock.)

- 2 cups of cold potato soup stock
- 2 cups strained tomatoes
- 1 cup evaporated milk

Heat gently, but not to the boiling point. Add no soda.

Cream of corn, bean and pea or other vegetable soup may be made in this same manner.

Cream soups may also be made with white sauce as a

basis, one-third part of vegetables with their juices and two-thirds white sauce is a good proportion. This proportion can be varied.

VEGETABLES

COOKING VEGETABLES

Steamed vegetables retain more vitamins and mineral salts than when cooked in any other way. So do this if possible. When cooked in water, use as little water as possible and salt slightly, as this helps the vegetables to retain their own salts. Watch to see that they do not burn, and if any juices are left, serve on the vegetables, or add to the soup stocks. Do not under any condition throw them away.

Wash greens very thoroughly in several waters. Lift them out of the water instead of pouring the water off, so that the sand and grit which has sunk to the bottom of the pan will remain there. Cook only in the water which adheres to them, and do not add soda as alkalis will destroy the vitamins.

If chopped before cooking, they will cook very much more quickly and more vitamins will be preserved. Cook in a tightly covered vessel as this also preserves the vitamins. Don't cook over 20 minutes. A little butter or cream, or cream sauce, and lemon juice can be added after they are cooked.

Have one or more of the following often:

Spinach, dandelion, beet, celery or turnip tops, Swiss chard, lettuce, watercress, kale, endive, cabbage, Brussels sprouts, collards.

In many of the vegetables, especially potatoes, most of the vitamins and mineral salts are close to the skin. Remember that.

In baking potatoes, scrub them well with a scrub brush, and see that some of the potato peel is thoroughly chewed and swallowed. The skin itself has no virtue. Like Judy O'Grady and the Colonel's lady, it's what's under the skin that counts. When baked potatoes are done, to prevent soggyiness, cut or pierce with a fork so steam will escape.

In cooking potatoes to mash, scrub well and put the peelings in the soup stock (see recipe). They may also be boiled in their skins, or, better, steamed, and mashed afterward.

To serve vegetables with cream sauce, if much juice is left, canned milk or cream may be added and butter and flour blended together used to thicken, or the white sauce may be used.

Avoid over-cooking vegetables. They need not be mushy except for the babies who have to have their vegetables strained. They are better flavored and better for the teeth when a little firm.

Have agate or enamel ware for acid fruits and vegetables.

RAW VEGETABLE TONIC

Use any kind of raw vegetables you have, but especially include cabbage, spinach, carrots, onions and lettuce. Grind or chop fine. If grinder is used, put a dish under the grinder, so as not to lose any of the juice. Place in a gauze sack and press out the juices with a meat or vegetable or fruit press. These juices will contain most of the mineral salts and vitamins of the vegetables.¹

¹ Give a wineglassful diluted or undiluted once a day or oftener in any anemic condition, or goiter. Can be served on cooked vegetables.

VEGETABLE BROTH

(“The Home Dietitian”—Wood-Comstock.)

Parings from 6 potatoes
Parings from 3 or 4 carrots
2 red onions
1 cupful tomato
2 tablespoonfuls oatmeal
The tops of a bunch of celery
1 cupful or more of spinach
Celery salt
Pinch of thyme or bay leaf
Salt to taste

Scrub thoroughly all vegetables before paring. Put to cook in cold water. Cook all the vegetables together with the oatmeal, slowly, two or three hours, adding enough water so that there will be about one quart of broth when done. Or, after cooking for one-half hour, they may be placed in a fireless cooker. Strain, and add seasoning. Reheat and serve. Number of servings, six. Valuable especially for mineral salts.

DESSERTS

APPLE INDIAN PUDDING

2 cups quartered apples
 $\frac{1}{2}$ cup molasses
 $\frac{1}{2}$ cup brown sugar
4 cups milk
 $\frac{1}{4}$ cup yellow cornmeal
2 tablespoonfuls butter
1 teaspoonful salt
Cinnamon and nutmeg

Scald milk, pour on cornmeal; add remaining in-

gredients; pour into buttered dish and cook in a slow oven about three hours.

ROSE APPLES

("Pastries and Desserts"—California Home Economics Association.)

Cook whole or quartered apples in syrup of 2 cups water and 1 cup sugar. When partly done add a handful of red clove candies or some rose vegetable coloring. Serve with a spoonful of ice cream or whipped cream. Pears may be cooked in the same way. Sprinkle with cocoanut.

CUSTARDS

2 cups milk

2 to 3 eggs

$\frac{1}{3}$ cup sugar

Speck salt

$\frac{1}{2}$ teaspoonful vanilla

Nutmeg or cinnamon if desired

(2 eggs give a delicate consistency [will unmold in small cupfuls]; 3 eggs, custard is firm enough to turn out of large mold. When using yolks alone use 3 or 4.)

Scald milk in a double boiler. Beat eggs slightly, add sugar and salt and the scalded milk gradually. Cook at a moderate temperature to prevent curdling.

To Bake Custard: Set baking dish or cups containing custard in a pan of hot water in a moderate oven. The water in the pan should not be allowed to boil.

To Steam Custard: Place custard in cups in a steamer, place towel under cover to absorb moisture.

To Test Baked or Steamed Custard: Thrust a knife blade into the center of the custard and if it comes out clean it is done.

If custard curdles it can be beaten smooth with a Dover-type egg beater provided it is done immediately.

Soft Custards. Use general proportions, cook in a double boiler, stir constantly until mixture coats the spoon. Cool and flavor. Do not allow the water in the bottom of the double boiler to boil.

RICE PUDDING

(Care of Children Series No. 3, Bureau of Publications No. 30.
U. S. Dept. of Labor.)

1 quart of milk
 $\frac{1}{3}$ cupful of rice
 $\frac{1}{3}$ cupful of sugar
 $\frac{1}{2}$ teaspoonful of salt
 $\frac{1}{8}$ teaspoonful of ground nutmeg or cinnamon, or
the grated rind of $\frac{1}{4}$ of a lemon

Wash the rice thoroughly, mix the ingredients, and bake three hours or more in a very slow oven, stirring occasionally at first.

The above recipe makes quite a large pudding. It is often convenient to make a smaller one, and enough for a child's dinner can be made in the double boiler, allowing 2 level or 1 rounding tablespoonful each of cereal and of sugar (or other sweetening) to a cupful of salted and flavored milk. Cook an hour or more without covering.

These puddings, if made thin, may be poured over stewed prunes or other cooked fruits, and are a good and economical substitute for the cream or soft custard often used for that purpose.

FROZEN CUSTARD (FRENCH ICE CREAM)

For each half-cupful of milk allow one-fourth cupful of sugar, one or two egg yolks or one whole egg, and a half-cupful of cream. Make a custard out of all the ingredients but the cream. When it is cool add the cream and flavoring, and freeze.

PART III

DIET IN DISEASE

It is my purpose in this little book, mothers, to give you the diets for your children to keep them in normal health. Not what to do for them when they are ill, for that is the province of your physicians. However, I want to give you enough on the diet in diseases to tide you over until you can see your personal physicians and get specific directions.

Never expose your children to infectious diseases, Mothers! The old idea that they were bound to have the diseases of childhood, and the sooner they had them the better, is terribly false. It is just the opposite. They do not have to have them necessarily, and the later they have them, if they are contracted, the greater is the chance for recovery.

CHAPTER I

THE MALNOURISHED CHILD

IS THIS YOUR LITTLE GIRL—AND YOU?

“No, mother! I tell you I don’t want any lunch! I want to stay here and swim. I had some candy a little while ago.”

“Lucile! I tell you to get dressed! I don’t know how you feel, but I am hungry. Hurry, now.”

“Now, mamma, I tell you I am not hungry! I want to stay and swim and I’m going to.”

“Oh, Lucile, you are so stubborn! Just like your father. Well, all right; stay if you insist. I haven’t the strength to argue with you. I am going to have my lunch. Remember what you have to do this afternoon! You have to study your French lesson for to-morrow. You have your toe dancing lesson, you must practice your piano lesson, and you have to try on your dress if you want it done for the party this evening.”

This conversation is carried on in the open-topped dressing room next to mine in the bath house.

I wait expectantly to see the child as she comes from her dressing room. I have a mental picture of her. The high-pitched, nervous, petulant voice of the child and the high-pitched, nervous, petulant voice of the mother, combined with the facts that I have gleaned from their conversation, have painted a vivid picture of her, and I am anxious to see if it is verified.

It is.

A girl of eight emerges. Stooped shoulders, sunken chest, prominent abdomen (the fatigue posture), thin little arms and legs, pinched and wan little face—a typical picture of malnourishment. She is at least fifteen pounds underweight.

The cause? The conversation tells.

Lack of home control, irritable and unpleasant home atmosphere, insufficient and improper diet, faulty food habits, overfatigue, insufficient sleep. Enough, surely, to make any child a wreck.

Swimming when she should have been eating wholesome food; taking dancing lessons in the afternoon when she should have been taking a nap; late hours and insufficient sleep; dictating her own course of conduct; managing her own affairs when she is too young and inexperienced to have responsibilities.

Does your child belong to the pathetic army of malnourished children? Are any of the causes that operated to make this little girl come to her pitiable condition among the causes of your little one's malnourishment? Or has your child some physical defect such as adenoids or enlarged tonsils, carious teeth, running ears, defective eyes etc.?

Does your child have a daily rest period of at least an hour in a darkened room, lying down quietly, without toys, and sleeping? Does your child have 10 to 12 hours' sleep in a well-ventilated room at night? Is your child's diet adequate and nourishing and growth-promoting?

Do you let your child have its own way because you haven't the strength (?) to argue with it—in other words, because you have a mistaken idea that it is easier for you to give in than to see that it obeys?

Are you careful not to give too many "*DON'TS!*"?

Do you realize that a child is an active, investigating animal and that he must have something to interest his growing faculties? Otherwise he may be doing something you don't want him to do?

Do you know that the first principle of discipline is that a child must believe in your truthfulness? That if you tell him a thing he is doing is not desirable and that if he continues to do it, you will have to punish him for it—that you must always keep your word? And that you must have the punishment fit the offense and follow immediately?

Do you know that you must not punish in anger, and the punishment must never under any circumstances be a slap on the face or head or a pull on the ear?

Will you get the lesson from the following little story?

Jackie came to the table with dirty hands. His mother expostulated, "Jackie! Look at your hands! Go and wash them. Why do you always come to the table without washing your hands? You know I never let you eat your meals with dirty hands." Jackie observed, "Yes, mamma, ONCE you did."

- | | |
|---|---------------|
| 1. Insufficient and improper diet. Faulty food habits. | Résumé |
| 2. Physical defects, especially obstructive adenoids and tonsils. | |
| 3. Irritating and unpleasant home atmosphere; lack of home control. | |
| 4. Insufficient sleep. | |
| 5. Overfatigue. | |
| 6. Faulty health habits. | |

These are the causes of malnourishment. Think them over, mothers.

**Insufficient
and Improper
Diet**

Oh, that I could write with a pen as large as Big Bertha and as far-reaching in each stroke! How woeful and terribly widespread is the ignorance on the fundamentals of the diet of children!

Aside from the infectious diseases, by far the largest per cent of the disorders of children are traceable directly to improper foods, insufficient foods and faulty food habits.

"How can I make my little girl eat, doctor? It is coax and tease her all the time to eat the things she needs. She won't eat this, she won't eat that, she is finicky, irritable and nervous. She is very much underweight, but I cannot get her interested in eating."

This is from one of my correspondents. The following is from another:

"Doctor, I am writing this, not to thank you for having given me instructions by which I have reduced my weight, but because you have saved the life of my little girl.

"She was slowly, but surely, going to death. I had had her examined again and again by a good physician. He said there was nothing organically wrong with her, but that she must eat more of all nourishing foods. We did not understand anything about food values and we thought she was eating a lot. Still she did not gain, but was steadily losing, and we were in despair.

"Then came your 'Key to the Calories.' God bless you! And God bless the calories! She has gained five pounds in weight in ten days and is herself counting her calories and making a little game of it.

"We found she had been taking only one-third of the number of calories that she needed, and we thought that she was eating a lot! She is a different child already."

The first mother who wrote can get some very valuable lessons from the second mother. The first lesson is that the child was taken to a physician to find out if there was anything organically wrong with her. The second is that the mother got the child's interest in its own welfare. And the third is that she studied herself and got a knowledge of the elements of nutrition.

Some
Valuable
Lessons

I might add that the physician who did the examining could also get a lesson from this letter, and the next time be more specific in his directions to a parent regarding so vital a thing as the diet of a child in this state.

The first mother might also get a very wrong impression from the second mother's letter. It is this, that a knowledge of the blessed calories was all that was necessary. Oh, no! *Oh, no, indeed!* I am emphatic about this because there is so much misinformation broadcasted about calories.

A knowledge of the caloric value of foods is simply one of the essentials of a modern scientific knowledge of nutrition. Simply one, BUT a big one. In the case of this little malnourished girl it was a knowledge that saved her life.

There is an extremely rapid growth of the nervous system in childhood. In undernutrition there is not only a lowered resistance to infections, but there is also a great tendency for this rapidly growing nervous system to be upset, and disorders such as disturbed sleep, hysteria, St. Vitus Dance (chorea), bed-wetting, and many other disturbances of a similar nature may be brought about. When the nutrition is improved these disorders often disappear.

Rapid Growth
of Nervous
System

It is also found that where there is under-physical development there is very apt to be a retardation in the mental development. Poor nutrition is a decided handicap to normal mental growth. How can we expect an undernourished anemic and nervous child—these characteristics usually go together—to apply himself to study?

Nutrition Classes

Perhaps there is a nutrition class in your school, or some child welfare organization near you. If so, let your malnourished child join this, if he is old enough, and the inspiration he will get from other children who are trying to gain, and the instruction that he and you also will get (for the mother or guardian has to attend and take an interest also) will be exceedingly helpful.

If there are no nutrition classes, perhaps you can get the Parent-Teacher Association, in coöperation with your local health board, interested in forming one. The Child Health Association, 370 Seventh Avenue, New York City, will give instructions how to do this. They also have a wonderful collection of interesting booklets and cards teaching health habits, gotten out especially for the children.

It has been demonstrated that the very best way to get results with children in health improvement, as in other things, is to get them interested through their natural play and game instinct. The game of health becomes the most fascinating game they have ever played.

If there are any physical abnormalities, we will presume naturally that you are going to have these attended to, so the child can be, as Emerson says, "Free to gain." Free to gain! What a picture that brings up!

Here's the program to make it materialize:

The Program

1. Thorough physical examination by competent physician to discover diseased conditions and to remedy them, if possible. These should be repeated at least every year.

2. Right mental, moral and physical surroundings for happiness. An unhappy child is not likely to gain. Have a cheery, positive attitude and talk health and strength, the conditions he is going to manifest, rather than the ill health and weakness which he is manifesting. Eliminate all nagging, scolding and fault finding.

3. The elimination of overwork and overplay which leads to overfatigue. Don't let him get too tired to eat! It may be best to take him out of school if his condition of malnourishment is extreme.

4. Long hours of undisturbed sleep—11 to 12. No movies or excitement in the evening.

5. Long hours in the fresh air and sunshine with as few clothes on as possible, so as to expose the skin to the direct rays of the sun. (Do this gradually.)

6. At least one rest period one-hour long, lying down and sleeping if possible, in the afternoon or forenoon, or both.

7. Last, but very important, the furnishing of sufficient nourishing food at regular intervals.

All of these must be done if the child is free to gain.

You must realize that the irritability and the **Tantrums** nervousness and "tantrums" of the malnourished child are due to the fact that his entire system is starving and his nervous system is extremely unstable. (The normal child's nervous system is not very stable, remember that.) He is not mean because somebody on his father's side is mean! (He may be mean if you or

father are mean though! He is a good imitator and you make him nervous. He can't help it. You can.)

You must realize that very great patience and tact and kindness combined with firmness will have to be exercised to get him out of that state. You will find, when the child is better nourished, he will have an altogether different disposition. He will advance mentally as well as physically.

Some Eating! His food needs must be sufficient not only to supply his growth and energy, but enough more to make him gain the weight he should have; so he has to eat even more than the normal child eats, and that means some eating!

The undernourished child may have to have two and perhaps three times the amount of food that the normal child needs. Analyze his diet and see if he is getting sufficient of the protective foods. If not, increase these as well as his energy foods. However, you must do this gradually. Do not try to do it all at once. The number of egg yolks—the golden food—can be increased to two or three or more, a day. They can be beaten in the cream sauces for the vegetables or taken in eggnog, custards, etc. Egg yolks are rich in the vitamins, phosphorus, iron and fat; and they seldom disagree.

Cod-liver oil acts wonderfully in some cases.

If he is an excess candy and ice-cream and rich pastry eater, these instead of being increased must be decreased, and never allowed between meals. Give him more milk, unless, as I have told you before, he is taking so much milk that he does not have sufficient appetite for solid foods. Remember he should have *at least* three glasses a day, so get that amount in him in some form. Cook his cereal in milk if necessary.

Compute approximately the caloric value of the food he has been having by the calorie table (Page 60). You will probably find that he is getting much less than he should have, and, remember that even though the number of calories he has taken should tally with the number that is given in the standard table for his age, if he is underweight he needs much more than the normal child.

It is wise to keep a record of his foods and his activities for at least two days, then you can get a better idea.

Let me repeat, begin increasing his calories gradually; see that he gets the proper amount of protective foods; gradually increase the milk and the egg yolks of the protective foods, unless he is already getting too much of them. Gradually increase his whole-wheat bread and butter and cream and other energy foods.

**Repetition—
We Learn
by It**

Cook the cereals in milk if necessary to get the full allotment of milk, and add a little more cream on them when served. Give a mid-morning and mid-afternoon lunch—of milk preferably—so that he won't have to over-distend his stomach at mealtime, unless you find that he will eat better and more during the day by limiting him to three meals a day.

Prohibit tea and coffee. No growing child should have them. Prohibit candy and pastry eating between meals. See that he has plenty of rest and sleep and happy home surroundings. Carry out this program, and your malnourished child will be out of the shadow of death. (This sounds very strong, mothers, but it is true. For malnutrition undermines the resistance to many diseases, especially tuberculosis.)

I am going to give you a letter I received from one of my little followers: I am going to run it

**A Loving
Testimony**

just as I received it. (Please, typographers and proof-readers, leave the spelling "as is.") If you don't think it is the dearest, cunningest letter you ever read, mothers, and if you don't get the lesson from it, there is no hope for you! Do you want your children to have rosy "chiks"? Follow Laura's program!

Dear, Dear, Dr. Lulu:

I must send you my many thanks for the phamlets which I received a month ago. And since that I gained 8 pounds, and mother gained 6 pounds. Oh; what a joy it is to count calories. I beg Mothers who have children they should send for the phamlets and let their children have fun to count calories.

Calories! My Dear Morther had an afull time to make me eat things. But now I know what and how much I have to eat. I value Dr. Lulu's phamlets next to my prayer book. I read your part every day in the Newspaper. I know the calories almost by heart. Also I must tell you Dear Dr. Lulu I have rosy chiks too. I take a quart of milk every day and plenty of vegetables and fruits. My calories run between 2,000 and 2,500 every day.

Dear Dr. Lulu will you please give my correct weight. I am 10 years old 59 inch in hight, weigh 80 pounds.—LAURA.

Cunnin'? The "phamlets" have in a brief form some instructions on gaining and losing. If Laura can accomplish so much on the "phamlets" your little girl or boy can certainly do as well and more easily with your help now, and the "Kalore Kids." They're coming! They'll help! Did you notice Laura's mother gained 6 pounds? Thin mother, thin child. Inheritance! No! Same type of food. Same habits of eating. IMITATION.

HOW TO AVOID (HAVING) A FINICKY CHILD

The finicky child usually is, or has the potentialities of becoming a malnourished child. So let us have a little on the subject of how to avoid having a finicky child.

It is characteristic of childhood (and normal) to be more or less capricious, and to want to show off. The way children can do this most effectively, they often find, is in the matter of eating. Often when a new food is offered a child, even before he has tasted it he will look at it disdainfully and perhaps shove it away saying he doesn't like it!

And now, mothers, here is where you will make your big mistake if you don't see that that food is eaten or that a little punishment goes with the non-eating of it. But don't scold! And don't coax and don't say "Eat it for mother's sake"—or daddy's sake. That is bad psychology. Explain that he needs that food for his own sake, to make him grow strong and big. Perhaps the use of some comparison will appeal to him. He wants to be as strong and healthy as some of his favorite characters in stories or life or the movies, if he is at the age when he is seeing moving pictures. And he certainly wants to be strong so he can play and have lots of fun!

If he still continues to refuse it, do not let him have his favorite foods (and this will apply especially to the dessert) unless at least a small amount of the food is eaten. But don't scold, mothers! Mealtime must be a happy time.

If this doesn't work, let it pass. Next time deprive him of some little visit or some play, with the explanation, which has a large degree of truth in it, that if he won't eat the food that will make him strong he will have to rest more and sleep more. You can use the comparison of a tiny baby who gets nothing but milk and he has to lie in his crib and sleep most of the time. (This comparison is a little loose, but he won't recognize it.)

Don't

If this doesn't work perhaps the suggestions which follow will help you.

Everybody
Likes
Everything

Be careful when children eat at the family table, that no one at the table expresses a dislike of a food the child needs. If father does not like spinach, nor never did, let him fib manfully how he adored it in his youth! That is why he is so strong now, or if he is not strong now, how he wishes he had eaten it! Better yet, let him learn to like it even now.

Children usually like what their parents like, but of course must not have the foods that are not suitable for them.

The following letters from two of our mothers will give you some good suggestions. I will give them with my comments just as they ran in the newspapers:

My dear Dr. Peters:

I have been quite successful in the feeding of three children and the middle one is fussy. The ages are nine, five, and two.

Their dislikes are not discussed, ever, and they are not coaxed or forced to eat anything they do not want. They are taught to say, quietly, "I do not care for any spinach, thank you." Then if it seems appropriate to the occasion, I say, just as quietly, "Well, dear, what you have had does not make much of a meal, so unless you feel like having your spinach, or something that is just as good, mother can't let you have any dessert, or candy, or take you downtown, or let you go next door, or whatever the next treat is to be."

Then if they turn to and eat a big helping of the despised article, I just say, "That's fine; now we can do so and so and you won't get all tired out and hungry." They are given candy by the box to put away and eat one piece after each meal, and they often forget it's there. I have never made a treat of candy or cake or late hours, so it's no party, and no temptation.

One summer the two oldest got sick with too much fruit eating, and the doctor said I would have to watch them to keep them out of the orchard. She was wrong. I put it up to them

on a common sense basis and heard from the neighbors how they politely declined some grapes and generously offered to show their tummies all broken out red because they had had too many already!

Of course all this presupposes considerable early training and patience and in my case I owe everything to a course in Child Psychology. I wish to go on record as saying that it does not presuppose an unusual child. Any child is reasonable if given a chance, but so pitifully few are given that chance. One more item, and I am through. I never lie to a child and I always answer their questions.

Everybody knows no two children are alike and no one child ever acts alike twice. My house is no haunt of angels, but the neighbors are crazy about my children, and my children are crazy about me. The five-year-old one said to me the other day, "I would 'certainly' rather be with you than with any one else in the world."—M. S. D.

There is much food for thought in this letter, mothers. That course in Child Psychology; oh, if all parents could have that! So many expect a child to have the reasoning faculties and the same development that an adult should possess.

Here is another very helpful letter from one of **Another Help** our mothers. I really believe that if children are not allowed to refuse foods they need, right from the start of eating solid foods, and that is as early as the sixth month (see Page 86), there would be no finicky child problem.

Dear Doctor:

I know from experience that your correspondent whose child has not learned to eat vegetables has a difficult task before her. Having had two children who were difficult to teach to eat certain articles of food, I venture to offer a few suggestions in the hope that they may be helpful.

I do not believe that faulty discipline is always to blame when

children display a distaste for some foods. In the same family, under the same discipline, some children will eat anything willingly, while others at a very early age will display a dislike for one or more foods. To overcome this difficulty the mother will have to exert unlimited patience and ingenuity. She will have to make herself a play-actor, and even a playwright, for if the child does not eat the food willingly it might better not be eaten at all. [No, this isn't right, mother. We've got to make 'em eat some things willingly or no. Otherwise some of them would starve for some of the needed elements.—L. H. P.]

To begin with, a child loves small things, as small dishes, small spoons. Serve a very small portion of the unwanted food at a time and do not repeat the same food more frequently than is absolutely necessary.

Plan with the child to surprise father at mealtime, by having the food all eaten without complaint, and do not neglect to tip father off so that he will be properly surprised. If the child is old enough, raw vegetables will sometimes be eaten with relish while you are preparing them. [This is all right if at their usual mid-meal lunch time.—L. H. P.]

A small mountain of mashed potatoes, with a mashed carrot sun rising over it, is sometimes devoured without ever realizing that carrots and potatoes are being eaten. Do not give your victim too much time to wander away from the idea that he is eating a mountain and a sun.

Small metal toys, such as rings and animals, may be buried and tunneled for. (Be mighty careful here, mothers, that the toys are clean and are not swallowed, too!) Play that you are a mother bird bringing food to a little one in the nest. The child can be taught the call of a large variety of birds in this way. Of course, this would necessitate the mother feeding the child, but it works. [Later the child can be taught that he is an old enough bird to feed himself.—L. H. P.]

A child will often eat with relish vegetables that he has seen growing and has helped to gather. Frequently, by a little effort, we can acquaint ourselves with some new vegetable of the same class to take the place of the one especially disliked. As the child grows older he will learn to like a great variety of vegetables if you do not let him get away with too much "choiceness."

In our own family every child of six and over is required to eat at least a small portion of every food that comes to our table, with

three exceptions. One boy is exempt from onions, one from fish, and one girl from turnips. [This is all right if the food does not happen to be milk or whole-wheat bread or other needed foods. I can sympathize with the girl who can't stand turnips. They are about the only food in the entire pharmacopœia that I don't like.—L. H. P.]

I hope I have been able to offer help of some value to your correspondents and that I have not taken too much of your valuable time. I find your articles very interesting and helpful.

—M. W. B.

Isn't that a splendid letter? I included her compliments to our service for I can see the writer is a woman of great discernment.

To avoid having a finicky child, the main thing, let me repeat here, is to catch 'em young enough.

In the next chapter we'll take up the child who isn't finicky enough.

CHAPTER II

THE FAT CHILD

Rough Language

YOUR child is not fat, mother, because you are fat, or his father is fat, or some one else in the family is fat. Your child, if he is healthy, is fat because he eats too much. Just as you are, mother, if you are fat. Rough language? It's true! And if you are fat there is no doubt that you serve too many fattening foods, and your child, who is a good imitator, likes the same excess of fattening foods that you do because he sees you eating them.

The reduction of overweight in children is practically the same as the reduction of overweight in adults—that is, furnishing the body fewer calories of energy foods than are necessary for the activities, and making the excess fat serve to help supply the energy needs.

Too Good to be True

There are no foods which in certain combinations make fat and in other combinations actually consume fat. This statement you may read in advertisements, but there is no truth in it. Too good to be true! Any food is fattening or is an irritant if it is more than the system needs. Some foods are much more fattening than others. Ah, yes! The concentrated foods, such as sugar and the fats, are very much more fattening than the watery foods, such as vegetables and fruits. But, measured by calories, 100 calories of lettuce (approximately 16 ounces), for instance, is just as

fattening as 100 calories of butter (approximately $\frac{1}{2}$ ounce).

One thousand calories *of any food* is equivalent in energy value to one-fourth of a pound of fat. If every day the diet has 1000 calories less than the system needs to maintain its internal and external activities—in other words less than the maintenance diet—theoretically and practically, one-fourth of a pound of fat will be called upon to supply these needs. Five hundred calories less than the maintenance diet will make the system supply one-eighth of a pound a day.

But! this precaution—especially in the reduction of children: The growth and protective foods must *not* be included in the 1000 or 500 calories of food not taken.

Milk must not be omitted because it is needed for its complete protein and its calcium. A quart of milk has 640 calories. If whole milk is taken, then the child can cut down its butter to one-fourth of a pat a meal ($\frac{1}{4}$ level tablespoonful), for he will get the vitamins and fat in the cream that he would get in the butter. If skimmed milk or fat free buttermilk are used—a quart of either is one-half that of whole milk, or 320 calories—he can have half a pat of butter at a meal.

Fat children are usually excessive bread-and-butter, candy and dessert eaters. I was a fat child for a period, so I know from personal experience, as well as from observation. I remember an incident of my childhood once when I was at a neighbor's house on baking day. Shortly after eating five slices of warm bread, liberally buttered, I announced that I had to hurry home to get my dinner! No wonder I was a plump piggie.

The bread and butter must be limited, but not cut out entirely—one slice at a meal is a safe allowance. It

is best to serve bread well toasted throughout, for it will take longer to eat. Bread toasted has the same food value as it has untoasted, so the toast must also be limited.

Candy, sugar, and sweet desserts must be very strictly limited, and perhaps prohibited until he loses his abnormal craving for them. The child can have all the water to drink that he wants, and he should have a lot, especially between meals. It is not fattening. Ice-cream sodas and other syrupy drinks must be rare treats instead of the daily dozen.

Two More Precautions

1. Rapid reductions must be avoided, because too rapid reduction must mean that some of the growth needs are not being supplied. One pound, or at the most one and one-half pounds a week, is a good average loss.

2. In case of a severe cold, if you find his cold seems to hang on, it is best to put the child back on his maintenance diet. Be careful that he does not eat enough to gain.

REDUCTION RULES

1. Sufficient food to supply all the needs of the system, except some of its fuel or energy needs. Count the number of calories that have been consumed a day, and cut down the energy foods 500 to 1000 calories from this. If this does not result in a loss of weight, cut them down still further. Get the child, if old enough, interested in counting his calories himself and make a game of it. The K calorie Kids, on page 291, will help him. Have a little reward for each week when he loses. *Insist on very thorough mastication*

as that helps to control the appetite and is beneficial in other ways, as you know.

2. If there is constipation on account of the reduction of the total quantity of food, it is wise to give every day at a regular time 1 to 3 tablespoons of non-medicated granulated agar, which you will have to get at the drug store, or some bran. These can be taken mixed in a cereal or stirred into cold water and drunk.

3. Weighing should be done on the same scale at the same time of the day in relation to meals and eliminations and in the same weight clothes.

Once a week is often enough to weigh unless you realize that there is a normal daily variation in weight due to varying retentions of water. Sometimes, when there might be a real loss of fat, the scales would show an increase in weight due to this retention of water. This is apt to discourage unless you understand it.

4. Some vigorous exercises every day and much active play. Have him join a gymnasium if possible.

5. Keep a chart so there will be a picture of the weight going down. There is a model for you in the last part of the book.

6. No physics and no medicines to reduce. They are not necessary. If the child is fat because of trouble with some of his internal secretory glands, he should be under the care of a specialist, who will give the necessary medicine. The patent medicines are very dangerous.

Now, while it is true that it may be better for your child to be a few pounds overweight for his height, than the table allows, when he gets over 15 to 20 per cent overweight, his resistance to disease is lowered just as the resistance is lowered in underweight.

Pneumonia and other respiratory diseases are more

**Why Should a
Child Reduce?**

severe in over-fat children, and the same overeating and underexercising which result in obesity are the chief causes of diabetes.

Now, aside from the question of disease, there is another side to this overweight in childhood, a very pathetic, and, to the child, a very tragic side.

I am going to give you excerpts from some of the letters that I have received from some of these fat children. They will tell you much more effectively than I can what it means to them. I shall also give you some letters showing the results gained by following the instructions similar to those I have given you.

1

Dear Doctor Lulu:

I am a girl of 15 years, height five feet two inches, and weigh 142 pounds. Will you tell me just what I should eat for breakfast, lunch and dinner in order to reduce?

Oh, Doctor, please have pity on me and answer this as soon as possible as I am getting so fat that I shall be ridiculous. Any boys that I shall meet will say, "Gee, but you're fat!" And I cannot bear to hear that from a boy.—J.

2

Dear Doctor:

I am 18 years old and fat. I am self-conscious, and imagine every one is looking at me and making fun of me, which no doubt they are. My Dad is built big and every one tells me it will be useless to try to reduce. All my girl friends are enjoying themselves at parties and dances while I have to be content to stay at home. I am telling you this because you will understand just how I feel. Every one else laughs at me and I am sure you won't. . . .—C.

3

Dear Doctor:

My mother reads your column every day, so to-day I come to ask you if you know of some way of reducing my thighs and

abdomen. Most young men have no abdomen, just a mere flat stomach, and as my companions tease me when I go in swimming, I would like to reduce what they call my "Provision" and my thighs, and as I am very fastidious I wear the latest style in suits which have very narrow pants, and with my fat thighs I split my pants right away. Remember I mean fat "abdomen" and fat "thighs"—not hips, thighs. Hoping you won't think wrong of me because of the nude sketches, but as I know you are a doctor I know you won't. Yours sincerely, A. B. C. JR.

4

Dear Doctor:

A dear little (?) friend of mine 12 years old weighs 187 pounds. Her parents suspect that she has diabetes and she is much troubled with severe pains. Her flesh is much puffed out as in dropsy. She is such a lovable child, a real little gentlewoman, and I should give so much to see her enjoy the natural play of childhood instead of sitting about envying other little girls.

Her mother told me that as a family they eat from 20 to 24 loaves of bread a week and other foods in proportion, and there are only four of them in the family. So you can easily see where the trouble lies. . . .—MRS. BETTY.

5

Dear Dr. Lulu:

I am 11 years old, and weighed 136 lbs., which was too much. I wrote to you for your book on reducing, and as soon as I received it began according to directions. In seven weeks I have lost 11½ lbs. I am feeling better and everybody says I look better. I keep strict account of the calories I eat each day, and I do not have to go hungry as many people think.

Please publish this in the paper for the benefit of others.

Yours truly, DOROTHY.

6

Dear Dr. Peters:

Please excuse me for not writing you sooner. Every week since I wrote you last I have lost a pound, except the last one,

and then it was a pound and a quarter. I certainly hope I keep on losing. I now weigh $148\frac{3}{4}$. I am in the B grade now, and I got "1"—Excellent—in all my subjects except Gym and Penmanship and in those I got "2"—which means Good. Ever since I have started dieting I have stopped having so many colds, and I haven't had tonsilitis for nearly a year now. I wasn't absent from school a single day this last term, which is a new record for me.—AGNES.

[She weighed nearly 200 when she began to reduce. Her normal was 115.—L. H. P.]

If you did not know before, mothers, you know now from these letters the real danger and the real unhappiness the fat child suffers. You know from the last two letters that it is unnecessary. And I am sure you will do your best to prevent and to remedy excessive overweight in your children.

I have gone into the subject of reducing more thoroughly than I have space to do here in my little book, "Diet and Health with Key to the Calories" (Reilly & Lee, Publishers, Chicago, Ill.). If you have an obese child, mother, I wish you would get that, please. It will be profitable—for both of us!

CHAPTER III

FASTING

YEARS ago we used to say that when we were ill, we should eat to *keep up the strength*. Later, because many times food was given which was not suitable and seemed to retard recovery, then the opposite extreme was advocated, and fasting was advised as the only thing to do in fevers or any other disease and the saying, "If you eat when you are ill, you feed the disease and not yourself," became popular.

The statement is often made that the digestive functions stop in fevers, and that any food taken does not nourish, but rots, and so is nothing but a poison. That is nonsense. The digestive functions do not stop any more than the other functions stop. They may be retarded. Yes, we'll grant that; but they do not stop any more than the heart functions or the lung functions or the ear functions stop, unless they are the ones directly involved, and then they may, of course.

The fact that animals do not eat when they are sick is often cited as an example for us to follow. But we cannot always reason from animals. It is possible that if they did eat some at that time, many of them might live instead of die. The fact that there is no appetite is also cited as an indication that fasting is the proper thing to do, but as far as the appetite always being an indication, we know that is not true, for in the very diseases which would be benefited by a short fast or a great

limitation of food, the appetite is oftentimes markedly stimulated.

The fact of the matter is we know now that the principle of eating *to keep up the strength*, in illness as well as in health, is the correct one. However, the food must be of such a nature that it is easily digested and does not cause any strain on the kidneys, heart, liver and other organs. Clinical experience has taught us that we don't "feed the disease" when we do this, but we do feed the patient and prevent the patient's body feeding the disease.

A short fast of one to two days with nothing given but plenty of water is undoubtedly of benefit in cases where there is an autointoxication, overweight or high blood pressure. Agar should be taken, and perhaps some paraffine oil, to furnish bulk and lubrication so the bowels will move, and an enema had better be taken night and morning also in these cases.

Undernourished children and adults should not be subject to a total deprivation of food for any longer period than 12 to 24 hours, for they have no reserve fat to be called upon to supply the increased burning going on in the body.

Sometimes physicians order a longer fast than this in certain cases—surgical, diabetic and others—but it should not be taken except under the orders and personal supervision of the physician.

Prolonged Fasting

The recent deaths in a Chicago sanatorium conducted by a fasting faddist, and the deaths we hear of quite frequently of people who have fasted for prolonged periods, show that this is an unnatural process. During fasting it is the body which not only feeds the disease but itself as well, as I have said.

Kellogg condemns prolonged fasting very much. He claims that the disadvantages of prolonged fasting far outweigh any advantages, and that the advantages may more easily and more comfortably be obtained by a scientific regulation of the diet. Muscles and organs, including the heart, waste; the body loses its iron and vitamins, for they cannot be produced in the animal body, and the fasting person feeds on his own body. The faster is not only a flesh eater but a cannibal! There is a condition of high toxicity and acidity brought on by this cannibalism.

The so-called fruit fast or green-leaf vegetable fast of 500 to 1000 calories for the day will give all the advantages of fasting without the disadvantages.

CHAPTER IV

FEVERS

THE principles I am going to give you on diet in fevers will apply to the infectious diseases of childhood and to pneumonia, acute rheumatism, common colds and any disease whose toxins (poisons) produce a rise in temperature.

When there is a fever, there is an extra amount of burning going on in the body. Unless the proper food is furnished for fuel for the burning, then the patient's own tissues are going to furnish it. This not only causes a great weakening and loss of weight, but also causes a starvation acidosis. (Reread the chapter on fasting.)

We realize now that many of the symptoms we formerly thought were due to typhoid fever were really due to the starvation acidosis brought about because too little food was given. The percentage of recovery in this disease is much greater, now that the needs of the system for proper food are supplied. And the length of the illness and convalescence has been very much shortened.

To Keep Up the Strength

Now what must we supply the system "to keep up the strength"?

1. ENERGY food in the most easily digestible form.
2. VITAMINS.
3. MINERAL salts in good proportions, for there is a great loss of these in fevers; iron and calcium particularly.

4. PROTEIN in easily digested form if fever is prolonged. Fats and protein are not well cared for when the system is deranged. So the fats and proteins must be given carefully when given.

5. Pure water in liberal amounts.

The best forms for these foods are:

1. FRUIT JUICES, fruit purées, fruit soups.

2. VEGETABLE purées—especially of spinach for its iron and calcium—and vegetable juices and broths. (See recipes.)

3. GRUELS, sweetened with malt sugar (it contains iron, calcium and vitamins) or milk sugar. Can beat an egg yolk in them later.

4. MILK, buttermilk, koumis, and other fermented milks, and wheys.

The fruit juices and vegetables for the short fevers, then if the fever continues the gruels and milk should be added because of the need for more protein.

The dextrinized cereals, those in which the starch has been changed to the easily digested dextrin, may be used at first when cereals are used. Wheat flakes, corn-flakes or shredded wheat, zweiback gruels, or oven toast thoroughly browned till crisp way through in the oven, later oatmeal and rice and other cereals may be used.

The concentrated vegetable juices, broths and purées give vitamins, mineral salts, carbohydrates and some protein, and a little combined fat. Milk should be added to the fever patient's diet as soon as possible for its complete protein and its mineral salts. Perhaps at first it had better be taken skimmed and boiled. The cream can be added gradually. Boiling the milk makes it more easily digested because the curds of boiled milk are soft and flaky, while the curds of fresh milk are larger and

more solid. The vitamins will be supplied by the fruit juices and vegetables.

Fruit Juices

Fruit juices are very important in feeding the sick for many reasons.

FIRST: They are well liked usually.

SECOND: They contain a large amount of water. This is very necessary in fevers.

THIRD: Vitamins.

FOURTH: Though acid, when oxidized the alkaline salts are liberated and thus they help keep down acidosis.

FIFTH: For the energy value in the fruit sugar, dextrose. It is easily assimilated.

SIXTH: Antiseptic properties.

SEVENTH: Laxative.

How Much?

How much should our patients with *prolonged* fever have to eat? *As many calories as though he were well and engaged in moderate activity!*

Kellogg says this, and there is no physician in the United States who has had a longer or more extensive experience in treating disease than he has had. Many other experts agree with him.

This would necessitate very frequent feedings when the patient is on fruit or vegetable juices—every hour or oftener, perhaps, depending upon the patient's needs.

For constipation in fevers, Kellogg advises bran or agar taken in sufficient doses to produce a daily emptying of the bowels. He says bran is not irritating, as many people suppose, for it is thoroughly softened by the intestinal moisture. He also advises mineral oil. This, of course—and the diet also, for that matter—would be regulated by the physician in charge of the case.

CHAPTER V

ACIDOSIS

YOU remember when I talked on the general uses of the mineral elements and the necessity for getting the right mineral elements and in right proportions, I spoke about their importance in keeping the blood and the tissue fluids in their normal slightly alkaline state. We must talk a little more on that subject.

The blood and tissue fluids probably never become actually acid in life; but if they become less alkaline than they should be, a condition which we term acidosis is brought about and the health is impaired, more or less, depending upon the degree of acidosis produced.

The alkalinity of the blood may be lowered in two ways: First, when there is an excessive production of acid in the system; and second, when there is the normal amount of acids, but they are not gotten rid of by the system because of some disorders of the eliminating system. The severe forms of acidosis are seen in severe diabetes, kidney disease, and some of the serious gastro-intestinal disorders in children. These must be cared for under the personal direction of a skillful physician, for they are very dangerous.

**The Blood
Alkalinity**

The mild acidoses are caused by the excessive production of acid in the system through prolonged incorrect diet. And of course if this goes on long enough, the different organs of the body will be injured so much

that they may become diseased and severe acidoses may result. The mild acidoses and autointoxication mean about the same.

Acid-Forming Foods

Certain foods contain more acid-forming elements than other foods. If these acid-forming foods are not well balanced by the alkaline-forming foods, then we can expect the overproduction of acid with its injurious effects.

Meat, white of eggs and cereals, especially those which have gone through the modern milling processes and have had the germ and the bran which contain most of the alkali or basic minerals removed (this would include white bread and pastries made of them) are the main acid-forming foods. Excess *sugar and candy and excess fat* will also tend to cause acidosis.

A diet which includes too many of the acid-forming foods also tends to cause constipation and putrefaction, with the evils that these conditions produce.

Alkali-Forming Foods

Milk and vegetables and most fruits are the alkali-producing foods. Fruit acids, when burned in the body, liberate the alkaline salts with which they are combined; so that the effect of fruits is to increase the alkalinity of the body rather than to diminish it.

While prunes, plums and cranberries are not listed among the base or alkali-forming fruits, their laxative effect (especially of prunes and plums) would tend to counteract their slight acid properties by helping to prevent constipation with its long retention of the waste in the bowels. The acid salts of these fruits are largely in the skins, and these can be removed if they are taken when there is a tendency to acidosis.

If you and your children have a diet consisting mostly of white bread, meat and pastries, even though you have potatoes also, you have a preponderance of acid-producing and vitaminless foods. You are suffering, or eventually will suffer, from acidosis; and if the acidosis continues it will lead to many serious diseases.

**Bread, Meat,
Potato Diets
—Common**

Among the symptoms of acidosis may be shortness of breath, nervousness, mental depression, drowsiness, rheumatic pains, neuritis, skin disorders, sometimes asthma, and in the more severe forms, convulsions and unconsciousness.

Symptoms

An exclusive fruit or milk or green-leaf vegetable diet or a combination of these for a few days or longer is advised for cases of acidosis. (Remember, the serious types of acidosis should be under the care of a physician.)

What to Do

Then continue to include milk and the green-leaf vegetables and fruit in your diet. Take them in good-sized amounts, cut down your meat to the minimum. Avoid cane sugar and candy and fat in excess. Eat more potatoes and less white bread. See that the bowels move freely every day, not by drugs, but by the correct diet, regular habits, exercise and the inclusion of non-medicated agar or bran, or liquid petrolatum, if necessary.

Remember that acidosis can be caused by overeating for the needs even of the right foods. It can also be caused by prolonged undereating (by causing a starvation acidosis), if the body has no surplus fat.

CHAPTER VI

AUTOINTOXICATION AND THE INTESTINAL FLORA

THE term "auto" means self: *autobiography*, a biography written by oneself; *autointoxication*, the intoxication or the poisoning produced in oneself. The term "autointoxication" is applied to a poisoning of the system due to the overdevelopment of harmful putrefactive bacteria in the intestines. This is brought about when excess amounts of food are taken in general, or in particular, because this causes an improper balance in foods.

Under these conditions the foods are not properly digested, the proteins putrefy, carbohydrates ferment, and the fats become rancid. This forms a mass in which the putrefactive bacteria predominate excessively in the intestinal flora. I shall have to explain about the intestinal flora.

Intestinal Flora

Germes, as I have explained to you before, are microscopic plants, and they live everywhere except on things that are sterilized. Some of these microscopic plants are apparently normal inhabitants of the lower part of the small intestine, and the large intestine, and their presence helps in the digestion of food. These microscopic plants in the intestines are known as the *intestinal flora*.

In the normal healthy stomach, the hydrochloric acid is powerfully germicidal. That is, it kills most of the ordinary germs that are eaten with the food and drinks,

and if it does not kill them, it stops their growth; nor do they grow normally in the upper part of the small intestine. In the lower part of the small intestine and in the large intestine, the few germs which escape in the hydrochloric acid of the stomach find conditions suitable for their growth.

Now under normal healthy conditions, the harmless and beneficial germs develop very rapidly and help digest the food. They also hinder the growth of the harmful putrefactive type. (You remember I told you that germs divided ever twenty minutes and in a few hours there are a billion trillions of them.)

After improper habits of eating such as bolting the food, overeating or undereating, or unbalanced diet, the first effect may be seen in the stomach. The normal hydrochloric acid cannot work effectively, stomach digestion is delayed and fermentation may take place, resulting in a sour stomach and gas. The food, in turn, not being properly prepared in the stomach, produces abnormal conditions in the upper part of the small intestine, so that this becomes a ground for the development of the putrefactive and the abnormal fermentative type of bacteria.

**One Thing
Leads to
Another**

All along the intestinal tract the harmful products formed by the putrefactive bacteria and fermentation and decomposition of food are absorbed into the blood. This produces the condition we call autointoxication or self-poisoning combined more or less with acidosis.

This self-poisoning may be mild or severe, and if it continues for any length of time it produces a diminished vitality in the tissues and the foundation is laid for many diseases. Bilious attacks, all sorts of aches and pains, gout, rheumatism, sick headaches, nervous exhaus-

tion, constipation, excess gas. Finally anemia and numerous other disorders may result.

**Change
Your Flora**

On a too high animal-protein diet, especially the proteins of meat and fish, the putrefactive bacteria are very prone to become excessive. In these cases the intestinal flora must be changed. An exclusive fruit diet for two or three days will do this or an exclusive milk or buttermilk diet. Buttermilk artificially made, of the Bulgarian or acidophiles types, is especially effective. The lactose or milk sugar of the milk encourages the growth of the harmless lactic-acid germs and discourages the growth of the putrefactive germs.

Kellogg advises milk sugar, two or three ounces, to be taken during the day also.

If you or your children are suffering from autointoxication, correct your condition and don't let it happen again. Avoid excess meat and fish, have a properly balanced diet containing a large element of the green-leaf vegetables and milk—the protective foods—and have some good vigorous exercise every day, especially of the trunk. The prevention of constipation by exercise and by fruits and cellular vegetables—and the addition of agar or bran or mineral oil if necessary—is very important.

CHAPTER VII

ASTHMA

ASTHMA is sometimes due to dietetic errors. It has been proved in certain cases of asthma of children that they were consuming excessive amounts of milk, eggs and oatmeal and thereby getting too much protein in their diets. In these cases, cutting down the excess milk, so that not more than a pint was taken, and omitting the white of the eggs resulted in freedom from asthma. Of course, other hygienic measures, fresh air, night and day, correction of faulty postures and a correct diet in all respects were part of the treatment.

Asthma in children and adults is sometimes due to the absorption of some of the invisible protein which floats in the air and is inhaled, such as certain grass and flower pollens, the dandruff of dogs and cats, rabbits and horses. Felt hats which have rabbit fur in their make-up (and this is frequent) will cause asthma in susceptible people. Sometimes mattresses have rabbit fur in them and they cannot be used. Feather pillows are sometimes the offenders.

Eczema also at times is a form of protein poisoning. We often find that children with eczema later have asthma. Sometimes in cases of asthma, it may be necessary to do as in eczema, find out which protein is the offending one by the laboratory tests. (See "Eczema," page 218, and "Food Idiosyncrasies," page 235.)

Sometimes enlarged thymus glands produce asthma. Read about that on page 207.

CHAPTER VIII

OBSTRUCTIVE ADENOIDS AND TONSILS

ASIDE from insufficient and improper diet as a cause of malnutrition, the nutrition workers have found that physical defects—especially obstructive adenoids and tonsils—are big factors as a cause of malnourishment. Dr. W. R. P. Emerson especially emphasizes this.

Obstructive adenoids and tonsils are a great cause, and it is highly probable they are not only a cause, but also an effect of malnourishment. In fact there is no doubt that improper and insufficient diet is a factor in undermining the resistance so that these conditions, as well as other diseased conditions, develop. In the experimental laboratory it has been demonstrated that deficient diets will produce a catarrhal condition of the mucous membranes in animals. Why not in man?

(Thumb and finger and pacifier sucking by babies and children also undoubtedly stimulate the growth of adenoidal tissue, mothers.)

“Mucus- Forming Foods”

Quite often I am asked to give a list of “mucus-forming” foods. There ain’t no such animal, mothers. Any perfectly good food, if eaten in excess, or diets which are deficient, either in quality or quantity, may undermine the resistance so that all the tissues, including the mucous membranes, suffer. But there are no specific mucus-forming foods.

I do not want you to get the impression that I do not approve of having obstructive adenoids and tonsils removed. There is nothing so striking as the immediate improvement in children who have had their adenoids and tonsils removed when they have obstructed the breathing.

Obstructive adenoids and tonsils not only are sources of malnutrition, but of chronic colds and infections, and they tend to deform the face and chest and oftentimes markedly retard physical and mental development. I certainly believe they should be removed if they fail to improve under local treatments and correction of the diet, and if your family physician, in consultation with a nose and throat specialist, advises it.

CHAPTER IX

BED WETTING (ENURESIS)

TOWARD the end of the first year, voluntary bladder control should begin, and by the second year it should be established. Of course this bladder control has to be taught to babies by placing them at frequent regular intervals on a vessel at first held in the mother's lap. This can be begun as early as the third or fourth month.

Causes

Enuresis in older children may show lack of the earlier training, and in this case you have to begin with them as you would a baby and train them aright.

Very, very often children who are bed wetters are undernourished, and the nervous system is unstable for that reason. When the condition of undernourishment is corrected the habit ceases. Less often, but still quite frequently, the overnourished fat child suffers from enuresis.

Other things causing the habit are local irritations, such as pinworms, or a very tight foreskin in boys. Those of course have to be attended to. The urine may be irritating by being too acid or too alkaline, or there may be other irritating factors in the urine, so a urinalysis should be made.

Bladder- Control Drill

If the child is old enough to understand, teach him that he can control the bladder himself in the following manner: Once or twice a day, when he is

urinating, have him stop two or three times during the process. Have him void, count one, two; stop, count one, two; void, count one, two; and so on until the bladder is empty. And explain, and be very patient with him, mother, so he will understand the reason for this little drill. Let him know that he is doing this so that he can get control of the bladder muscles himself. This is a very important part of the training in an older child. Reward him for being faithful to the training.

Punishment usually makes a child worse, by making him more nervous. Rewards are better. Never punish your children, mothers, for this habit, for which you may yourself be to blame, unless you are sure that the habit develops from the child's carelessness or indifference. This of course would only apply to the wetting in the daytime. You could not consider that it would be due to carelessness while asleep.

Restrict the liquids after 4 P.M., and allow no exciting plays or stories after this time. Put to bed early. Have him void just before. Have him sleep alone if possible. Have fresh air in the room. Take up at 10—again at 2 and at 6—set the alarm clock so you can do this exactly on time.

No tea, coffee, stimulants or salty or highly seasoned foods and no concentrated sweets should be allowed, for these cause the water to be retained by the system. Later it accumulates in the bladder and causes pressure on the bladder opening.

Regulate the diet according to the principles I have given you. Reread the chapter on the normal diet, the fat child and the malnourished child.

1. Remove cause.
2. Bladder-control drill.

3. No punishment.
4. Restrict play and liquids after 4 P.M.
5. Early to bed.
6. Take up at 10, at 2 and at 6.
7. Regulate diet.

CHAPTER X

CONVULSIONS

BECAUSE the nervous system is very responsive and delicately attuned in childhood, convulsions—a manifestation of a disturbance of the nervous system—are much more common in them than they are later in life. There are many causes of convulsions in children, the most frequent one being an irritation of the stomach or intestines from improper things eaten.

There is nothing that strikes so much terror to the entire household as convulsions. While they may be due to a very simple cause, your physician should be called to be sure that they are not from a more serious cause, and to give the treatment that will prevent further attacks.

For the attack, mothers, you can give a hot mustard bath—one tablespoonful of mustard to a gallon of water, as hot as you can comfortably put your elbow in for five to ten minutes. Place a small towel dipped in cold water, or an ice bag, on the head. A mustard pack may be more convenient to give, using some large towels wrung out of the mustard water and wrapping the child in these. Leave on until the skin is reddened well. As soon as possible give him an enema with warm soapsuds and a dose of castor oil. You may find this will bring surprising things. One little girl I treated was harboring over a cup of watermelon seeds.

**For the
Attack**

Diet Nothing should be given but water for six or seven hours, then cereal gruels or boiled milk and water, or fruit juices, for twenty-four hours. Gradually increase the diet to normal.

**St. Vitus
Dance
(Chorea)** It is not fully known what the cause of chorea is, but prolonged undernourishment, unhappy irritable home surroundings and prolonged over-excitement are predisposing causes. It not infrequently is associated with rheumatism. The régime I have outlined for the malnourished child and the attention of a skillful physician are necessary.

CHAPTER XI

CONSTIPATION

CHRONIC constipation in children is due to the same causes as it is in adults. *Irregularity of habit, under-eating or overeating, lack of sufficient roughage or cellulose in the food, insufficient exercise* (hardly ever this in children) and *constant physic* taking, are the most common causes.

First we will take up irregularity of habit.

Defecation is partly voluntary and partly involuntary. As soon as the bowel contents reach the rectal canal the nerves are stimulated and a desire to defacate is experienced. If the desire is not gratified at the time, and if this is repeated often, the nerves are blunted and the stimulation is lost.

Babies can be taught as early as the second month to control the bowels if they are placed on a little vessel held in the mother's lap twice a day. This regularity taught in babyhood is the best training for the bowels in childhood. If children are taught the importance of going to the toilet at some regular time, preferably after meals—because eating starts the intestinal movements—there will not be so much danger from constipation.

If the inclusion of the proper amount of laxative food in the diet every day does not result in regular bowel movements, then bran or agar or mineral oil can be added. Agar is a Japanese seaweed, and it is not digested. It absorbs water so that it forms a good moist bulk in the bowels. Get the non-medicated, granular

form. You have to get it from the drug stores. Add a tablespoonful or more if necessary to the children's cereal, or have them take it once or twice a day in a glass of water. (See recipes.)

Enemas and physics should not be used habitually, they simply tend to make more constipation.

The laxative foods are foods which are rich in cellulose. They are most all *fruits*, especially *figs*, *prunes*; among cereals, *oatmeal*, *whole and cracked wheat*, *cooked bran*, *bran bread*, *shredded wheat*. Practically all of the *fresh vegetables* are laxatives.

Miscellaneous: *molasses*, *malt sugar*, *honey* and *butter-milk*.

CHAPTER XII

DIABETES

DIABETES is a very serious disorder and the child or the adult suffering from it should be under the care of a specialist.

Joslin says that 75 per cent of his cases of diabetes were overfat before the disease manifested itself, and he believes—and we all agree—that the prevention of overweight is one of the greatest preventive measures against diabetes that we have. That is one of the reasons why I write so much on the prevention of overweight.

Diabetes is almost always caused by a disorder of the pancreas of such a nature that its internal secretion—which has to do with the oxidizing of sugar in the system—is not produced normally. The sugar is not converted into the form that can be used by the system and it is eliminated in the urine. This not only deprives the system of its needed sugar and starches (for they are converted into sugar in digestion), for energy food, but it keeps the tissues and organs saturated with sugar in a form which acts as a poison.

The thing for you to do, mothers, is to prevent the excess candy and pastry eating, or excess eating in general, which leads to overweight and the disabling of the pancreas and other organs so that they cannot perform their work. In this way you will prevent diabetes in your children (and in yourself) in the large majority of cases. We always find that children develop diabetes

more often after Christmas and other holidays than at other times. The reason is obvious.

It is quite significant that with the increased per capita consumption of sugar in the United States there is a marked increase in diabetes.

Banting and MacLeod of the Toronto University (Canada), have discovered—through animal experimentation—a remedy for diabetes almost miraculous in its effect. It is called “Insulin,” and it is an extract of sheep’s pancreas. When it is taken, the system can utilize the starches and sugars and the patients can eat enough to gain and keep up their strength. It is not known yet whether it will regenerate the pancreas and cure the disease, and it has to be taken by injections which are more or less painful, indefinitely. So the thing to do is to prevent the disease. That we can do to a great extent.

In general, the diet for diabetes has to be very low in carbohydrates—the sugars and starches. The acid fruits, green leaf vegetables and nuts—except peanuts and chestnuts—are the foods that have the smallest amount of carbohydrates. The foods highest are bread, potatoes, cereals, legumes, macaroni and the sweet fruits. Diabetes is not a case for home treatment, so do not try to do this, mothers. Do what you can to prevent its forming.

The insulin remedy is only distributed to physicians who are experienced and competent in the treatment of diabetes. Write to your County or State Medical Society, if necessary, and they will furnish you the list of them.

CHAPTER XIII

DIARRHEA

DIARRHEA is an indication that there is some irritation in the bowels that nature is trying to get rid of. So never under any circumstances give anything like opium or medicines containing opium—such as paregoric—to check the diarrhea, and thus lock the irritant in. Sometimes physicians order these medicines later, but they should not be given except under a physician's orders.

If the diarrhea is severe your physician should be called. If you cannot get in touch with your physician, or while you are waiting for him, do as follows:

Stop all foods for 12 hours. Give nothing but plenty of plain boiled water often—every hour or oftener. After that, milk and water boiled together—no sugar—for three or four minutes may be tried for 12 or 24 hours. If the diarrhea does not stop then, cereal gruels made with water can be tried.

Most diarrheas of children are benefited by a dose of castor oil in the beginning. This helps get rid of the offending material. (Before the sixth month one teaspoonful of castor oil, after six months a tablespoonful. It flows more easily given from a warm spoon.)

Very gradually resume the normal diet.

If the diarrhea is a sudden and bloody diarrhea, accompanied by violent vomiting and evidence of pain in the abdomen, drawing up of the legs, etc., do not under any conditions give castor oil or any other cathartic. It is imperative in this case to get in touch with your

physician, for it may mean an acute obstruction in the bowels, which a cathartic would make worse. Call your physician's attention to all the points I have mentioned, and any other symptoms. These cases are usually surgical.

CHAPTER XIV

DIRT EATING AND NAIL BITING

OCCASIONALLY children will eat things such as dirt, clay, pencils, chalk and plaster. It is generally thought that this abnormal craving indicates the system's need for inorganic material. It may be possible that this is so, for we seldom see a child who is healthy and normally fed develop these habits.

Of course, children are great imitators and I think it is possible that some perfectly healthy children might take up this habit if they saw their companions doing it. Like other habits, it will require patience and firmness to break, if it has been allowed to continue for any time.¹

Children can be taught from infancy not to put anything in their mouths except good food. If they are taught this valuable lesson they are going to escape many disorders. (See the chapter on "Poisons.") Undernourished children that have the dirt-eating habit will undoubtedly stop when they are better nourished. Re-read the chapter on the malnourished child.

The nail-biting habit usually begins when a **Nail Biting** child is two or three years old. Once acquired it is one of the hardest habits to control and it may persist throughout life. It is not a sign of degeneracy at

¹ The habit must be broken, for aside from the danger from the foreign matter, the material may be contaminated with disease germs and eggs from intestinal worms. (See "Worms.")

all, though, of course, degenerates may bite their nails. I know quite a few brilliant men and women who occasionally diet on nails.

Sometimes children and adults, too, will bite their nails down to the quick so there is hardly any nail left. Oftentimes their fingers become infected, and there is no doubt that many times infections are carried to the system. Children who have pin worms may keep themselves reinfected in this manner.

The thing to do, of course, is to discourage the habit in the beginning. If smartly slapping the hand every time you see it in the mouth does not work, then a cardboard cuff such as we use to stop the thumb and finger sucking will have to be used.

**Thumb and
Finger
Sucking**

Take a piece of cardboard long enough to extend nearly to the pit of the arm and the wrist.

Make it wide enough to make a loose cuff. Sew the edges together and put on over the shirt, if the child is wearing long-sleeved ones; if not, then over the dress sleeve. Fasten on securely. This cuff will allow the child to use his arms but will not permit the hands to get to the mouth. It has to be kept on night and day.

When the nail-biting habit has become established in an older child, this cuff may also be used, and perhaps putting adhesive straps over the end of the nails until they are grown out and the visit to a manicurist as a reward may be effective. Early teach the use of the file, for it is an effort to get the nail smooth that usually starts the biting. See that the nails are kept well manicured.

CHAPTER XV

GOITER (ENLARGED THYROID) AND THE THYMUS GLAND

(NOTE. Nothing I have written upon, with the exception of my instructions for attaining normal weight, has created more interest than the articles on the thymus and the thyroid glands. I have noticed from many of your inquiries and the comments upon the articles that have come to me, that some of you are confusing one gland with the other. Because of this and of the great interest in this subject, I will include the articles here.)

The *thyroid* gland is a gland in the neck which persists throughout normal life. We'll have more on this after I tell you about the thymus.

The *thymus* gland is a gland which is situated in the chest just below the neck. It extends down over the top of the heart slightly. In man, this gland attains its greatest size soon after birth; after the second year of life it greatly diminishes in size until, in adult life, there is only a vestige left of it. Occasionally the thymus gland will persist until puberty—the beginning of adult life—and occasionally it may persist throughout life. If it persists longer than normal the patient has a condition known as *status lymphaticus*.

The thymus glands of sheep we know as the neck sweetbreads. (The pancreas, an intestinal gland back of the stomach, is also called sweetbreads.) It has been stated that the thymus gland persists throughout life in

hibernating animals; that at the hibernating period the gland enlarges and becomes laden with fat, and this store of fat helps to maintain the energy during the winter sleep.

The function of this gland is not fully known. But as it is a lymphoid tissue, something like the lymph glands and the spleen, it probably helps to make the white corpuscles of the blood. Therefore it may be a blood-forming organ which is necessary in early life. There is also some connection apparently between the thymus and the generative organs, for in animals that are castrated the gland does not disappear or atrophy (shrink up) in its normal time, while removal of the gland hastens the growth of the testes (generative glands).

It occasionally happens that the thymus gland is enlarged beyond normal and does not atrophy as rapidly as it should. In these cases coughing and obstruction to the breathing—thymic asthma—usually result. Autopsies have disclosed sometimes that persons who have died suddenly under anæsthetics have had enlarged thymus glands.

Children or adults who have difficult breathing, asthma, persistent cough and other chest symptoms, should have an X-ray taken of the chest. This picture may show the cause of their symptoms to be an enlarged thymus gland. (Not infrequently pins and other foreign bodies show up in such X-ray pictures, as well as enlarged thymuses.)

The X-ray is also used for the treatment for an enlarged thymus gland.

Goiter

The *thyroid* gland is a gland which persists throughout life. It is located in the front of the

neck—not in the chest, as is the thymus gland. The thyroid gland has two masses connected by a narrow bridge and is situated astride the windpipe. Unless the thyroid is enlarged it is not noticeable. When it is enlarged we call it a goiter—from the word *gutter* meaning throat.

The internal secretion which is given off from the thyroid gland, taken up by its numerous blood vessels and distributed to the body, has a great deal to do with the body's functioning. The active principle in this internal secretion of the thyroid gland is an iodine compound.

It has been discovered that simple goiters—enlargements of the thyroid gland with no other symptoms—are due to a deficiency of iodine in the thyroid, and the enlargement of the gland is an effort of Nature to make up this deficiency. It is a futile effort, however; unless sufficient iodine is taken in the foods, in the water supply, or medicinally, the gland cannot produce it of itself.

Adolescent girls are particularly prone to simple goiter, especially if they live in the so-called goiter belts. (Boys suffer from goiter much less often than do girls; one to six is the proportion.)

In North America the goiter belt comprises the entire basin of the Great Lakes, the basin of the St. Lawrence river, and that portion of the United States and Canada known as the Pacific Northwest. Whether the goiters in these regions are due to a deficiency of iodine in the soil and, therefore, in the vegetables grown in that soil; or whether the water is deficient in iodine in those sections, is not fully known. When there is no iodine deficiency in the soil or water, there may be a disturbance of the iodine absorption by the body, due to some abnormal digestive condition.

We do know this much, however, that in simple goiter there is an iodine deficiency finally, no matter what the initial cause of it may have been; and the thyroid gland apparently enlarges in an endeavor to overcome this deficiency. This has been demonstrated by animal experimentation, for animals—especially fish, sheep and hogs—develop goiters and can be cured when iodine in suitable amounts is given in their foods.

Goiter is aggravated by improper hygienic conditions, extreme irritation of the nervous system, and anything that makes undue demand upon the physiologic functions of the thyroid gland, such as prolonged overwork, overplay or overexcitation of any kind.

In Ohio and Switzerland there has been great success in preventing goiter in adolescent boys and girls by giving very tiny doses of an organic iodine salt once a week. This treatment is also effective as a cure for simple goiters, in adults as well as children.

I cannot give the name to you, for you to use without your physician's personal diagnosis and prescription, because if it should happen that the case you wanted the remedy for was not a simple goiter, it might make the condition worse instead of better. Your physician is the one to make the diagnosis and prescribe this treatment if he finds that it would help you.

A balanced diet containing foods rich in iodine should be taken in liberal amounts in cases of simple goiter. (See Page 207.)

Kellogg thinks that a concentrated extract prepared from a combination of several vegetables might be of value. (See Vegetable Tonic and Vegetable Broth in "Recipes.")

Oatmeal is advised for a cereal, in simple Brose goiter, for it has been found in the experimental feeding of animals that oatmeal seems to have a favorable effect on the thyroids. Brose gruel of the Scotch, made of oatmeal stirred in boiling water and cooked only until the mixture thickens, might be the best way to take it. While in this way its starch is not all cooked, it seems to be nonirritating. This is the way the Scotch take it, and they are notably hearty people. It encourages intestinal activity, so it relieves constipation.

Too much fat should not be eaten because an excess of fat has been shown by animal experimentation to upset the thyroid gland. (Cod liver oil is an exception. It is rich in iodine and vitamins, and will help to cure simple goiters.) Diet not balanced in other ways, too much candy and sweets, too much meat, etc., also may upset the iodine absorption.

Now while we know that simple goiter is due to a deficiency of iodine, we do not know quite so positively what is the cause of exophthalmic goiter. Considerable evidence has shown that the thyroid can be disordered from infectious diseases, poisons, decayed teeth, diseased tonsils, etc. And it can become disordered from prolonged absorption of the putrefactive products of the intestines.

The diet in exophthalmic goiter should be one that will furnish a large amount of the vitamins and mineral salts, and one conducive to a complete evacuation of the bowels every day. Because the excess thyroid secretion causes a very great increase in the breaking down and burning of the body tissues, the diet must be very liberal to supply this great activity—else the body tissues them-

selves burn. This is the reason the exophthalmic goiter patients are so thin.

Exclude meats, fish, and all meat and fish products from the diet of exophthalmic patients. Tea, coffee, alcohol and tobacco stimulate the thyroid gland and must therefore be prohibited. Milk, cereals, fresh vegetables and fruits must be taken liberally, *but foods rich in iodine must be omitted*. This is just contrary to what we advise in the simple goiter cases, you see. Oatmeal, while of special value in simple goiter, should be avoided in exophthalmic goiter. The calories can be increased to almost double what would be taken normally, but remember that while the food intake should be very liberal, the high protein foods—meats, fish, egg whites and concentrated cheeses—should be omitted. Granulated agar, two or three tablespoonfuls a day, or mineral oil in the same amount, can be taken if constipation is present. Much rest and freedom from overwork and worry, and other hygienic measures are important. Very often a large part of the goiter has to be removed surgically before relief can be obtained.

(About this animal experimentation: It's a shame, isn't it, that a few animals should be sacrificed, if necessary, to discover means of preventing and curing disease in the human family and the animals themselves?

(It's all right for us to slaughter them by the millions for furs and feathers and foods and leathers—all of which we could do without—but to use a very few in animal experimentation to find out something, and to produce something that is going to save our children and ourselves, and the animals themselves, from the torture of disease and premature death—that's a shame, isn't it? It's a shame according to antivivisectionists. I cannot believe you are one, unless you have read only antivivisection literature and believe the falsehoods their leaders broadcast—and continue to broadcast even though they have been proved to be falsehoods—about the treatment of animals for these purposes and the usefulness of the knowledge and products acquired.)

CHAPTER XVI

RICKETS (RACHITIS)

RICKETS is not nearly so common now as formerly, but still there are many cases. The exact cause of rickets is not known. We know that dietary deficiencies can cause it and we also know that even when apparently adequate diets are given, rickets will develop when there is a lack of sunshine and fresh air. Bottle-fed babies are more subject to rickets than breast-fed babies. Too long exclusive milk diet, even human milk, may cause it.

In rickets, the entire organism is affected, the nerves may show their irritation in producing apathy or irritability, the muscles are flabby and the ligaments loose. The abdomen becomes distended (pot-bellied) the bones do not develop nor harden normally; there is bulging at the ends and bending of the shafts of the long bones; the legs bow, the ribs form little knobs on them known as the rachitic rosary, the fontanelles do not close on time, or may close too early.

Some of the deformities may last throughout life, and if the pelves of the little girls are affected, it may prevent normal childbirth later in life.

I tell you these things, mothers, so that you can see the importance of prevention as well as cure.

Rickets is more liable to develop during the winter months because babies are not out in the sunshine so much then, and the cow's milk and human milk are less rich in Vitamin A, because less green foods which furnish the vitamins are taken.

**Cod-liver
Oil**

Dr. Alfred H. Hess, who has had extensive experience in the study and treatment of rickets, advises pure cod-liver oil for babies during the winter months as early as the end of the first month. He advises beginning with five drops a day and increasing a drop a day until one or two teaspoonfuls are taken. It can be taken after a feeding or between feedings. Dr. Richard Dennett, another eminent child specialist (Pediatrist), tells me that he believes cod-liver oil is just as necessary for all babies as is orange juice, and he gives it in small doses throughout the year, summer and winter.

Colored babies, probably because the pigment in the skin prevents the beneficial sun rays penetrating, are more liable to rickets than white babies. In the colored section of New York, Doctor Hess found that cod-liver oil given to these babies very markedly reduced the cases of rickets among them.

You can consider cod-liver oil as a food, mothers, a food rich in Vitamin A, which prevents and helps cure rickets and certain inflammations of the eye. It also has a beneficial effect on growth.

Egg Yolks

Recently it has been discovered that egg yolks are as effective in preventing rickets as cod-liver oil, but they are not quite so potent as a cure. Raw egg yolks can be begun as early as the second month. (Begin with a quarter of an egg yolk—in the entire amount of the formula—and increase a quarter yolk every other day until one complete yolk is taken—in the entire formula.)

This has been done on an extensive scale in the Home for Hebrew Infants, New York, under Doctor Hess, and with splendid results in the prevention of rickets and

undernourishment. He states that there have been no bad reactions. Sometimes, there is a little yellow discoloration of the skin, but this does no harm. To the breast-fed baby who is inclined to rickets, the egg yolk can be given in divided doses, mixed in a little water or orange juice, three or four times a day; or when they begin to have their cereals and puréed vegetables, it can be mixed in those.

Egg yolks, as you know from our chapter on vitamins, are extremely rich in iron, phosphorus and Vitamin A. The white of the eggs should not be used, for in some experiments that were carried out with animals, the white of the egg seemed to increase the rickets rather than to help it.

To prevent and cure rickets:

Résumé

1. Correct diet—solid foods by 6th month.

(See directions.)

2. Direct sunlight, not through glass.

3. Egg yolks.

4. Cod-liver oil.

See a Pediatrist if possible, either in private practice or in the Children's Clinics.¹

¹ Physicians sometimes use the quartz-mercury-vapor lamp. It gives off the same healing rays as the sun, in a concentrated form.

CHAPTER XVII

TUBERCULOSIS

THE cure of tuberculosis depends upon an adequate diet, constant fresh air, sunshine and rest. The medication, all doctors will tell you, is secondary.

Tubercular children as a rule are undernourished children, so the chapter on the malnourished child, as well as the chapter on the normal diet, should be carefully studied.

Lack of foods containing vitamins, especially the Vitamin A, the one that is found in cream, milk, butter and yolk of eggs and green leaves, is now thought to be a contributory factor in undermining the tissue resistance so that the tuberculosis germs have a better field to develop in. These foods, then, should have special emphasis—but they also have to have special emphasis for the normal child, too. I think you realize that now.

It is thought that five to seven per cent of all cases of human tuberculosis are contracted from bovine or cow tuberculosis. This is more apt to attack the bones and the glands. The larger proportion of tuberculosis in children is due to this bovine type. So the importance of pure milk is very great. We have talked on that when we spoke of milk. The diet should have sufficient bulk so as to avoid constipation.

The sun treatment (heliotherapy), gradually exposing the body to direct sunlight, is a very vital part of the treatment of tuberculosis. Your physician will give you directions for that as well as for the diet and other measures needed.

CHAPTER XVIII

SCURVY

SCURVY is not uncommon in babies and children who have been fed on boiled or pasteurized or canned milk and have not had enough foods containing the anti-scorbutic vitamin in their diets. Scurvy can develop in adults also on deficient diets, as I told you when I discussed vitamins, and it is probable that many half-ill people are on the verge of it.

About the first symptom of scurvy is tenderness of the bones and muscles. The baby shows by crying that it is painful for him to be touched. He is pale and loses weight. Later his gums are swollen and spongy and he has hemorrhages underneath the mucous membrane of the mouth. The tendency of the blood vessels to break and hemorrhages both in the tissue and externally are characteristics of the disease. Severe scurvy may cause a form of paralysis.

The cure of scurvy is simple, like a miracle! It simply consists in giving orange juice or strained tomato juice, fresh or canned; or, if these cannot be secured, fresh cabbage juice, *in sufficient amounts*. See "Feeding After the 6th Month" for directions.

It is better to prevent scurvy by far, of course, and the prevention is the same as the treatment.

CHAPTER XIX

SKIN DISORDERS

THE skin is one of the organs of the body by which waste is eliminated (got rid of). The lungs, kidneys and bowels are the others. The skin may be irritated by any general disorder of the body and especially any disorder which disturbs the elimination. When this happens, there is a lowered resistance to external irritations, such as excess heat or cold, chemicals, plant poisons (poison ivy, etc.), and bacteria—which are always present on the skin—and pimples, boils, hives and other skin eruptions may gain a foothold.

Eczema

It has been found that in many cases of obscure eczema certain of the foods are not being utilized properly, and some particular protein will be found to be especially irritating and the patient has become sensitized to this food. This condition is now called a *food idiosyncrasy*. It may be temporary or lasting. Usually before this has happened, there has been some irritation of the intestinal tract, perhaps produced by overeating or the eating of improper things. This has not only crippled the production of the digestive juices, but it has also weakened the digestive tract so that the undigested proteins pass through it, gain access to the blood and then to the skin and other organs. And because they are not normal, they irritate.

Occasionally excess free fat has also been found to cause eczema, as I told you when I discussed fat. So

the thing to do in eczema is to try to find the offending protein and to cut down the excess fat if it is taken. It is often found that egg protein (the white of the egg) is the offender, and when eggs are stopped the eczema will begin to clear up.

Certain meats, especially veal and pork, sometimes certain cereals and occasionally cocoa, chocolate, strawberries and potatoes have been found to be the irritating factors.

Laboratories are now giving protein tests to determine which protein is the offending protein, when it is suspected these disorders are caused by the protein. (See "Food Idiosyncrasies.")

Many eczematous babies are overfat babies, and limiting their food so that they do not gain so rapidly will cause the eczema to clear up. Nursing babies who are eczematous have to be treated through the mother. The mother must leave off different proteins until she finds out which one is causing the trouble.

The eczema of undernourished children is exceedingly difficult to get rid of, until they are brought to normal weight. The dietetic treatment has to be combined with external treatment, and if severe should be under the care of a physician; for when eczema is extensive it is dangerous. Eczema on the face of a baby has to be covered with a mask to keep on the medication and to keep the baby from scratching.

Who hasn't had hives at some period in his life? Hives is such a well-known sport in childhood that no description is needed. *Strawberries, meat, pork, shell fish and coffee* are the most frequent offenders. Just as in some forms of eczema, some irritation of the digestive tract has lowered its efficiency so that certain food prod-

Hives.
(Urticaria)

ucts enter the circulation in an unfit stage to be used by the system. As these come to the skin a spasm of the blood-vessel walls occurs, and the fluid part of the blood and the white corpuscles go through the walls into the tissues. This is what causes the transitory white swellings or wheels and the itching which characterize the disorder.

Some English investigators have thought that during hives there is a deficiency of lime salts in the blood, making the blood thinner so that it goes through the walls more readily.

Treatment. The treatment for hives is to get the intestinal mucous membrane in working order again. A dose of castor oil, or some other favorite physic, followed by a diet of bread and milk, or better, shredded-wheat biscuits or triscuits, for a day or two will do the work. This diet will furnish plenty of lime as well as other needed elements. Sometimes an exclusive fruit juice diet is also effective. The diet should be gradually brought to normal. (Then kept normal.) (There is a simple ginger cookie containing one teaspoonful of tasteless castor oil to the cookie on the market. If the child cannot or will not take castor oil get some of these.)

Acne

Acne is one of the most common of the skin disorders. It is especially prevalent at puberty and at adolescence.

Different investigators have found that there is always associated with acne a rod-shaped germ which they have called "bacillus acne." As in other parasitic disorders, there are some special conditions which favor the growth of the parasites.

During adolescence—three or four years after puberty, the beginning of adult life—there is a great develop-

mental activity of all of the tissues of the body. There may be an overproduction of the skin oil (sebum) at this time, and this excess oil may harden in the skin and form plugs which block the pores, and the acne germs and other skin germs multiply under them, causing an inflammation and pus.

You can see from this that keeping the blackheads from forming would be a part of the treatment. Boys suffer more from acne than girls because as a rule they don't keep their faces so clean.

It is usually found that girls and boys suffering with acne are heavy eaters of candy, rich desserts, greasy and fried food, and often are excessive meat eaters. All of these habits, of course, must be stopped.

When I spoke of the digestion of fats, you remember, I told you if there is an imperfect digestion of fats it may irritate the skin. Excess eating for the needs, by causing an excess of putrefaction in the colon with the resulting absorption of the putrefactive products, is often manifested in the skin. Tea, coffee, alcohol and nicotine are on the list of things to be omitted from the diet.

Special attention must be given to elimination, and the diet should be such that a good evacuation of the bowels is produced at least once a day, preferably two or three times. (See "Constipation," Page 199.)

A skin specialist had better be consulted for acne, if possible.

Some of the things advised are:

1. Laundry-soap scrub two or three times a week.
2. Steaming the face after the scrub, and the extraction of the blackheads with a clean comedon extractor (they are inexpensive), never with dirty hands, as this makes them worse.

3. Opening up the postules—pimples—and squeezing out the pus gently. Rough work makes them start up again. Follow this with a scrub and an antiseptic to kill off the wandering acne germs and others. (Strong boric acid solution, 2 teaspoonfuls to a cup of hot water is a good one.) A compress wrung out of this can be laid on the face at night, also.

4. Sulphur ointment at night after the scrubbing will help some cases.

5. Sometimes touching the pimples once or twice a day with camphor phenrenique before pus has formed will abort them. (Camphor phenrenique is camphor gum and carbolie acid in equal parts.)

6. Correct diet, good physical exercise every day, the correction of any faulty health habits and the local treatment ought to do the work.

CHAPTER XX

WHOOPIING COUGH

THE difficulty in feeding children with whooping cough is that they vomit so readily.

Every precaution should be taken to make the diet very nourishing and as digestible as possible. The chief thing to remember is that after a spasm of coughing, if the child has vomited, a warm drink of milk, milk gruel or creamed soup should be given. If this is vomited, some more should be given.

If this is done, there will not be so great a loss of weight and anemia produced.

The reason it is so hard to get rid of whooping cough sometimes is because the child has become undernourished because of frequent vomiting.

It is important that the foods are not taken very cold or very hot, as the extremes of temperature may irritate and cause the spasm. If the child does not chew thoroughly, it would be best to grind or purée the vegetables and any hard foods.

A snug abdominal binder extending from the armpits to over the hipbones is a great comfort. It helps to support the walls while coughing and tends to lessen the attacks. While the coughing is very violent it is best to keep the child in bed for two or three days, in a well-ventilated room, and after that you should have him out in the open air and sunlight practically all the time. Remember that it is very contagious.

CHAPTER XXI

WORMS

I FEEL that I must include a little something about worms in our book, because it is so commonly thought that worms are caused by candy eating or have something to do with the diet. Worms have always been an affliction for the simple reason that there has been such widespread ignorance as to the cause of them.

Worms are not caused by any foods—candy or any other food *unless that food is contaminated by worm eggs*. All living things arise from eggs or seeds. Worms belonging to the animal kingdom, come from eggs. Therefore, the person who has worms has in some manner eaten or drunk some worm eggs, somehow, somewhere, sometime. I shall have to modify that last statement a little for tapeworms.

There are three stages to the tapeworm: the egg stage, the encysted or embryo, and the adult stage. There is a beef, a fish and a pork tapeworm.¹ The fish tapeworm is comparatively rare in this country. If you have a tapeworm, it is because you have eaten the flesh of some animal that had eaten the tapeworm eggs. The eggs had hatched in its intestines and the embryo worms had migrated through the intestinal walls to the muscles and had become encysted there. You have eaten this muscle as undercooked meat, and the encysted worms became the adult tapeworms in your intestines. Hard lines, but it's the nature of the beast.

Worms, while quite common in childhood, are not

¹ Other animals have tapeworms which may infest man. The encysted stage of the dog tapeworm may occur in man and cause a serious disease. Don't let dogs lap children's faces and hands.

anywhere nearly so common as is usually supposed. No matter what symptoms a child develops some one suggests that it has worms.

There is only one way to know if a child has worms or not. That is to examine the stool (bowel movements) frequently. If it has a tapeworm, there will be segments from the tapeworm; if it has pinworms, there will be little worms, looking like a third- to a half-inch piece of white thread; if they are round worms, you will find worms from five to ten inches long, looking like angle worms, but pointed at each end. (You won't mistake them for anything else! They are the wormiest worm you ever saw.)

These three types of worms are the most common in children.

If you cannot find the worms, an examination of the stool under the microscope will disclose the eggs, probably millions of 'em, *if the child has worms*.

For the tapeworms and round worms strong medicines have to be given on a fasting stomach. Treatment

As they are not without danger, you must see your physician for these. The pinworms can be home treated and I will tell you about those.

Once a day give an injection in the rectum of a solution made of two ounces of quassia chips boiled in a quart of water for twenty minutes, adding sufficient water to keep it to a quart from time to time. Inject a cupful of this warm, and after it is expelled use another cupful.

You can give a good cathartic, preferably castor oil, in the beginning.

The chief reason pinworms—the most common worms of childhood—are so difficult to get rid of is because,

with children particularly, there is not absolute cleanliness. When they go to the toilet, they do not always wash their hands afterward, and in wiping or scratching themselves they contaminate their hands with the worm eggs—hundreds of them. (The eggs are microscopic and cannot be seen without the aid of the microscope.)

These eggs are then often conveyed to their mouths directly or to the foods which they handle. They are swallowed and a new hatch comes on. The mothers and others who take care of wormy children better watch out. They'll get them, too, for the same reason.

To prevent round worms, see that all fruits and vegetables eaten raw are thoroughly washed and that foods are not handled by persons affected unless they are scrupulously clean.

The Prevention of Tapeworms

First: Careful Government inspection of the meat at the slaughter houses. You should also personally inspect all meat in the home. Discard any that has little foreign-looking specks in it. It is called "measley" beef and pork.

Second: Thoroughly cook all meats, even smoked and salted meats, in case some infected meats should get by the inspectors.

Third: Disposal of feces (bowel movements) of those having tapeworms, so that animals do not have access to it.

Fourth: Become a vegetarian if you like. Some experience better health on a vegetarian diet. Others do not.

Personally, I favor a mixed diet and a good inspection service in my health department.

A whole book could be written on worms (I'm going to write one sometime: it is a most fascinating subject),

but here, of course, I can only teach a little something so that you will know the cause of them and in this way prevent them.

If your child has tape or round worms, for which worm medicine must be given, he should be under the supervision of a physician, because worm medicines unsupervised are dangerous.

There is no special diet for the children with worms. You have to oust the worms, and then the diet should be the same as for any child.

A child who has worms is very liable to be undernourished with all the train of symptoms that undernourishment means.

PART IV,

CHAPTER I

FOOD POISONING (INFECTIONS, PTOMAINES, BOTULISM)

I MUST speak briefly about food poisonings and how to avoid them.

Foods may be poisoned or infected and so made unfit for food, from many sources.

Fruits and vegetables, especially those which grow near or in the ground, such as lettuce, radishes, celery, strawberries and others, may be contaminated with the fertilizer or human excreta, and these may contain germs of diseases such as typhoid or dysentery, or the eggs of intestinal worms.

Foods may be contaminated by those who handle the food if these handlers are diseased. Then there are the ever-present dust and flies and other insects. You can see from this how very important it is that foods which are eaten raw should be very thoroughly washed before being eaten.

Oftentimes perfectly good fruit and vegetables have been given the credit for causing intestinal disturbances when in reality those disturbances were due to contamination rather than the food itself.

Thorough cooking will destroy ordinary germs. It will destroy worm eggs and worm embryos also, but we don't want them, dead or alive.

Food handlers who are diseased or are carriers **"Carriers"** are a grave menace. A carrier is a person who has had an infectious disease, has recovered, but still

continues to carry the germs to which he himself is apparently immune.

You have all heard of "Typhoid Mary." She was a cook, and while apparently healthy herself, she was the source of several severe epidemics of typhoid and many deaths. They finally had to put her in prison, for while she knew she was the carrier of death, she was ignorant or indifferent and persisted in taking positions as a cook.

All food handlers in public places are under the supervision of the health department, but too often the health departments do not receive the support they should from the community and are short-handed and cannot do their work efficiently. So every precaution for clean food must be taken in the home.

Ptomaine Poisoning

When meat, fish and other proteins spoil they become putrid. This is due to the activity of the putrefactive germs, and it is nature's way of releasing the elements of the proteins, so they can be returned to the soil and air. During the process of decomposition, poisonous products are formed, called *ptomaines*. If you eat these foods in this stage you will suffer ptomaine poisoning.

There are different kinds of ptomaines for the different kinds of proteins. For instance, there is a fish ptomaine, a meat ptomaine, a shell-fish ptomaine, a cheese ptomaine, etc.

Rosenau, in his "Preventive Medicine and Hygiene," says that the term "ptomaine poisoning" is a misnomer. He states that in three years' study of the subject, he found that the cases of so-called ptomaine poisoning were not really due to decomposed proteins, but were caused from foods infected with poisonous germs other than the putrefactive germs.

However, it is very wise to remember that there is a poisonous decomposition which goes on in meat, fish, cheese, milk, etc., if they are not properly cared for by refrigeration. Never serve any protein or any other food which you suspect is not good. *Recooking such foods will not destroy the ptomaines.* NEVER eat such foods to save them. You may save a few cents at the time, but doctor and undertaker bills run into dollars.

Botulism is a severe poison caused by eating foods infected with botulism germs. The word "botulism" is taken from the word "botulus," meaning a sausage; because the first authenticated cases of the disease were produced by eating infected sausages, and it used to be thought that the botulism germ would grow only in sausages and meat. It is now known it also grows in vegetable protein. Botulism is much more common in Europe than it is in America.

Botulism

Botulism also affects cattle, horses and fowls, and the disease is known in them as blind staggers, forage poisoning, limberneck, etc.

Rosenau states that it may be responsible for various types of paralysis in domestic animals, including dogs.

There have been quite a number of human cases recently, and there seems to be a need of education on the lines of protection against it.

The poisons from this disease affect the central nervous system. Usually the gastro-intestinal tract does not seem to be affected.

Botulism germs do not grow in the human body and their effects are produced by the poisons that develop in the food which they contaminate. Most of the cases of botulism have been traced to sausages and canned food, especially fish and meat. However, *other canned*

foods may be contaminated if they are decomposed at all, or if in the canning sufficient heat is not used to kill the germs if they are present. The home canned foods, especially string beans, were responsible for a large number of fatal botulism cases recently. Best boil (at least 10 minutes) all canned foods containing protein before serving.

Do not eat any food that shows gas; nor even taste the food, because merely tasting the infected food has proved fatal. Botulism does not always produce an odor, so you cannot depend upon the odor of the food.

There is no danger from botulism from fresh food. It is the pickled, the canned or preserved foods that may have the infection. You should be just as careful to recook home-canned goods before serving as you are with the commercial canned foods.

Botulism grows only in foods that have protein in them, so fruits, having so little protein, are not liable to be infected. These germs may also affect cooked foods, especially meats, fish, which have been allowed to stand too long at room temperature; and such meats and fish should not be eaten after twenty-four hours, unless they are recooked and allowed to cool again; if you want them cold.

Treatment for the botulism poison is a serum treatment which your health department would supply.

Remember the point I have made, that *if the canned foods are sound and are thoroughly sterilized when canning, there is no danger from botulism.* The commercial canners are taking special precautions now. See that you do the same.

CHAPTER II

FOOD IDIOSYNCRASIES AND BAD FOOD COMBINATIONS

ARE you one of those persons who cannot take eggs or some other food which to everybody else, apparently, is perfectly harmless, without having a marked reaction in your skin or the gastro-intestinal tract or the mucous membrane of your nose or lungs?

When certain foods seem to poison you in this way we say you have an *idiosyncrasy* for those foods. Other terms that are used are anaphylaxis or sensitization, or food allergy.

It has been found that this unusual and poisonous action is due to the protein in the food. The system in some manner has been sensitized to certain proteins. Sometimes these sensitizations seem to be an inherited characteristic, and so will run in families. Other times the sensitization is brought about by some previous disorder which has crippled the absorptive membrane of the gastro-intestinal tract. And because it is not in good working order, the proteins are absorbed before they are digested and ready for their absorption, thus acting as a foreign substance in the blood and causing poisonous effects, varying in intensity.

In many cases of eczema it has been found that there is this hypersensitiveness to certain proteins, and this is the primary cause of these forms of eczema. The scratching and external irritation and the infection which is very liable to take place on nonresistant tissues helps keep up the condition. See Eczema, Page 218.

Fancied Idios There are many people who stop eating some necessary food because at some time when that food is perhaps immoderately indulged in, or their mental states were not conducive to good digestion, they have had some distress. I'll take that up under bad food combinations.

These fancied idiosyncrasies must not be confused with the true idiosyncrasies. Foods most apt to cause the true idiosyncrasies are fish, strawberries, pork, eggs, and milk, and certain cereals, especially oatmeal and buckwheat.

Protein Tests Laboratories are now giving protein tests so that a person who is hypersensitive to some protein, and does not know which it is, can be tested to find out.

The skin is scraped off a tiny spot on the arm or leg and the purified protein to be tested is rubbed upon that. If the system is hypersensitive to the protein a little inflammation will show very soon. If it is not sensitized, there is comparatively no reaction.

BAD FOOD COMBINATIONS

Have you heard so much about bad food combinations that you give yourself a great deal of concern about them? Don't do it.

Practically the only combinations of foods that you must fear are the combinations that do not furnish the needs for your system. Under normal conditions, you can eat practically any kind of combination, provided that during the day you get a balanced diet, and furthermore provided the foods are thoroughly masticated and not eaten to excess.

A large majority of the so-called bad food combinations are not bad at all in themselves, and if they do cause disturbances it is due to the powerful suggestion to which the digestive apparatus responds. Many of the so-called bad food combinations are simply superstitions. There are many people who are starving themselves and bringing on a starvation acidosis for fear of eating certain foods or combination of foods.

When these people join some cult that teaches them to stop thinking about themselves and *to eat what is set before them*, they oftentimes rapidly recover. Their recovery is due to the fact that the system is getting the elements it needs and the cult gets the benefit of the miraculous cure instead of the good food.

Then, there are those people who are influenced by the nonsense that some pseudo-scientists—those who have some diet system to sell—put forth in their ads and writings. Many of them state that certain foods if combined with other foods will form chemical mixtures in the stomach which will explode! Their knowledge of combinations, of course—which you can have for the price—won't do that. Perhaps, after reading such things, you have been afraid that your tummy might explode some day, and in consequence, you would half starve yourself or worry so that your food would not digest.

Pure
Nonsense

Just remember that these advertisements are written for the purpose of frightening you so that you will invest in the system advertised. That explosion statement is pure nonsense and has no scientific base at all. There are no good foods that will explode in your stomach. Just forget that. It may be possible that some combinations may disagree with you, and if you find they

do and you are absolutely sure that it is not due to the power of suggestion, then discontinue those combinations and realize that perhaps it is a little peculiarity of your own system.

Overeating of any good food or any combinations of food may cause distress, not because of the combinations or the food, but because you have eaten in excess.

Those who are undernourished and are trying to gain may have some distress when they are increasing their food allowance, but it is better to suffer a little local distress in the stomach than the general distress that will come from the starvation acidosis.

Unbalanced Meals

Now, in one sense of the word there are bad food combinations. For instance, if you serve at the same meal noodle soup with lots of noodles, potatoes, rice, bread, and a bread or cereal pudding, you have a bad combination, because it is topheavy in starch and energy foods, therefore unbalanced. If you serve meals without complete proteins or without balance in other ways you have bad combinations. You should give thought to these forms of bad combinations.

Now I'll take up a little the so-called bad combinations which are not so bad.

Starches and Acids

Those who have stated that starches and acids should not be eaten together, say that because the saliva which acts upon the starch in the mouth has to be slightly alkaline, the acids would neutralize this alkalinity. But if we are to go by this advice, then we would not be able to eat acid fruits with hardly any food, with the exception of meat and eggs, because all foods contain some starch or sugar.

By far the greater part of the starch digestion is car-

ried on in the small intestine. So you need not worry about eating acid fruits and starch foods at the same time if you want to, provided, again I repeat, you thoroughly masticate the food and do not eat in excess. Fruit acids stimulate the flow of a more strongly alkaline saliva so that they really actually help in digesting all starches even in the mouth.

It is true that milk curdles when fruit acids are added to it. But there is no fruit acid that is anywhere nearly so acid as the hydrochloric acid of the gastric juice of the stomach. And instead of fruit acids making milk indigestible, as a matter of fact they make it more digestible. But avoid excess, of course.

**Acids
and Milk**

(Experiments have proved that taking milk with foods will prevent large curds forming in the stomach, more so than merely sipping it. Boiling the milk also prevents it from forming large curds.)

The Bible says "Thou shalt not seethe the kid in its mother's milk." Certain religions are particular in this respect, even having separate dishes and being very particular that milk shall not touch meat. But unless you have a religious scruple against this, you can have milk when you have meat. There is only this point to remember, that milk has a high percentage of protein and meat has a high percentage of protein, and when you take them both, you may increase your protein too much unless you take smaller quantities of them. But they won't explode if taken at the same meal, I promise you!

**Milk
and Meat**

It is almost impossible to have a meal without having two starches. The combination that is usually spoken against is two highly starch foods, such

Two Starches

as bread and potatoes or rice and potatoes. Here again the only question is not whether they will form harmful combinations, but whether the starches will be in excess in the meal. And if we have two starchy foods, such as potatoes and rice at the same meal, then only one-half the quantity usually eaten of each should be taken. If that is done, take them both if you want to. However, one high starchy vegetable, when bread is also served, is the wiser plan. If you like a certain starchy food and take it in liberal servings, don't take any other starchy food.

Overweight children and adults had best limit their starches to one form—because this will tend to limit the intake more—and if bread is eaten, then omit potatoes, and vice versa, because in order to reduce weight, the starches and sugars and fats are the foods that have to be cut down.

Two Kinds of Fruit

Certainly you can eat two kinds of fruit together!—the more the merrier. What is more delicious than a fruit salad made with all the different fruits you can find?

Vegetables and Fruits

Because fruit is very quickly digested—if thoroughly masticated—and vegetables require longer stomach digestion, because of their fat and protein, it has been thought that fruit should not be taken at the same meal with vegetables; but as we should have vegetables, and in generous amounts for two meals a day, that would mean that we could not have fruits at meals except at the one meal when we had no vegetables.

Here again is the question of eating a little less of each, if both are served at the same meal. It does occasionally happen that fruit taken with other foods

seems to disagree with some people while it does not disagree when taken alone. If you find on repeated attempts that this is true with you, then take your fruit alone. But get it in some way. This will apply to other combinations.

Now let me emphasize again for all the combinations that it is not that they will form any poisonous compounds in the stomach, with possible explosions, but that there is a tendency to overeat, and to get a poorly balanced meal, if there are many combinations served. The daily menus should be rather simple, but varied from day to day and meal to meal to be sure to get the elements needed by the system.

**Emphatic
Again**

Don't forget thorough mastication. Don't expect your stomach to do the work of the teeth without its growling more or less, and don't overburden it (unless you are too thin; then you have to accustom it gradually to handle more food and you may have to stand its protests, but it will sooner or later be happy again).

Perhaps you have an idea some combination is indigestible for you because at some time when you have had it, you ate while you were mentally upset by anger, worry, sorrow, excitement, etc. The mental states do affect the digestion greatly. You have heard of the classical experiment of Cannon. With the X-ray he was watching the peristaltic movements of a cat who was contentedly eating. A dog, of perfectly good character but unknown to the cat, was ushered into the room. Immediately the cat stopped eating, arched her back in preparation for an attack if necessary, and the peristaltic movements of the intestines stopped. That is what happens to us when we are mentally disturbed.

CHAPTER III

CANDY

No book on diet for children would be complete without a chapter on candy, for when we think of candy we think of childhood, because it is during childhood that the most candy is consumed. The F. F. F.—Friendly Fat Fraternity—also consume much—much too much. Candy is so common in childhood that we use the phrase “As easy as taking candy from a baby” as a comparison.

In reality there is no foundation for that phrase. Those of us who have ever tried to take candy away from a baby know that there is no ease connected with it. If you want to precipitate a rough house, start taking candy from a baby, no matter what age! This brings up a picture to our minds which shows the craving for candy by children, if it has been cultivated in them. For the craving for candy is a cultivated habit.

Is the candy habit dangerous? There is no doubt that it is! Candy is a habit-forming food as much as alcohol is a habit-forming drink. I know, for I have had the habit—candy habit—and if an alcoholic craves alcohol more than I did candy—and even do yet at times—I am sorry for him.

**Do You Run
a Private
Still?**

It has been maintained by some writers that candy eating in excess causes an alcoholic fermentation. There is an alcoholic radical in cane sugar, so perhaps we do carry around a little private still in our tummies, and it is possible that this may account for the craving candy engenders.

One hundred years ago the average consumption of sugar per capita in the United States was ten pounds a year. In this present writing, it is nearer 100 pounds a year! A large part of the increase is undoubtedly due to increase of candy consumption. Holt states that the proprietor of one series of chain stores told him that he alone sold over 60,000 tons of candy in 1922.

We can easily say that this excess sugar consumption is one of the causes of the prevalence of overweight in the United States, and overweight is a forerunner to many disorders, notably diabetes, kidney and heart disease, apoplexy and sudden death, and a few other little things like that.

In Boston, in 1922, there were some efforts made to introduce a bill into the legislature prohibiting the selling of candy in the school districts, but it was unsuccessful. The commercial interests were undoubtedly the inhibiting factors. It would have been a good bit of legislation, undoubtedly, and might have had far-reaching results; for other cities and towns would have been encouraged to do likewise had this Boston attempt been successful.

Under normal conditions the sugar in the food passes mainly into the intestines unchanged, and it is digested in the intestines. Sugar eaten in excess, however, is very apt to undergo acid fermentation in the stomach and cause a direct irritation of the stomach.

Candy in excess is bad for adults—by causing these irritations directly, by unbalancing the diet and causing disorders in that manner, and by causing excess fat with its aforementioned large family of diseases; diabetes being the favorite child.

**Diabetes and
Holidays**

In children excess candy eating has far more serious consequences than in adults. For not only may it have effects that I have enumerated for the adults, but it very often cloy the children's appetites so that the foods that they need for growth and development are not taken. In a child with a diabetic tendency excess could precipitate that disease. We know that many cases of diabetes have their start during the holidays when excess candy is eaten.

It used to be thought that candy was the cause of much dental decay by direct fermentative action in the teeth. We know now that the action of candy in causing dental decay is not so much by direct action as by indirect action. In this way: it causes the diet to become unbalanced and insufficient so that the lime, phosphorus, iron and other mineral elements are deficient. For this reason there are not enough of them to be deposited in the teeth, so they soften and decay.

The irritation caused by excess candy may also hinder the absorption of the mineral elements even if there are sufficient of them supplied. It also may have effects on the vitamins (see "Vitamins," Page 31).

Candy is a food, a very concentrated food, but an energy food only. Most candy has no protein, no vitamins, no mineral elements, no anything but energy value. Pure molasses and maple candies are exceptions, for molasses and maple syrup do have some of the essential salts in them. Molasses and refined syrups are by-products in the manufacture of sugar and they contain practically all of the mineral matter of the cane.

White sugar is demineralized because it will not crystallize if the minerals are left in it. There are no proteins, no fats, no vitamins, no mineral elements, in white

sugar. It is a pure carbohydrate food and good for a concentrated energy food *if not taken in excess*.

The cheaper candies may also have adulterants that are harmful. Nut candies, of course, have the good protein and fat and the mineral elements of the nuts and are good foods taken as foods, and as part of a meal.

You must be very careful, mothers, not to give or allow any one to give nut candies to your babies. The candy melts and the nuts are left to be swallowed unchewed, causing irritations of the digestive tract, or, what is very much worse, being swallowed the “wrong way” and getting into the windpipe or the lungs. **A Warning**

The physicians who make a specialty of removing foreign bodies from the lungs say that they discover pieces of nuts among other things (safety pins, buttons, bits of toys, etc.) which they remove from babies’ lungs. They warn earnestly against the practice of giving babies nut candy. A baby really shouldn’t have any candy of any description, ever.

Neither children nor adults should have candy between meals. Children especially should not for the reasons I have given. After the building needs of the body are supplied, then a little pure candy is unobjectionable if taken at the end of the meal.

The craving for sweets can be satisfied very much more wholesomely by honey, prunes, dates, raisins, dried figs, etc. These contain sugar in an easily digested form and they also contain vitamins and some iron and some of the other essential salts. A delicious confection is made by grinding these dried fruits with some nuts and compressing into cakes. It is important that these foods—as well as all foods for that matter—are thoroughly masticated.

There is one stigma that has been placed on candy that does not belong there. That is, that candy causes worms. It does not cause worms. Not unless it is contaminated with worm eggs. That is true of any food. (If worms intrigue you, see Page 224.)

CHAPTER IV

CEREAL GRAINS

ALL of the grains resemble each other in their dietary properties. They are good energy foods and have a variable amount of protein which is splendid for the body if it is combined with complete proteins. When the bran and germ are removed they lose the larger part of the valuable elements—minerals and vitamins.

WHEAT

Wheat is the most important food grain in America and Europe. Most of it is made into bread. Most of the valuable minerals and vitamins are contained in the bran and the germ as they are in all grains. When they are left in the flour, it spoils quickly, and weevils and other insects, realizing they are valuable foods for their babies, lay their eggs in it. The commercial value is affected, so modern processes of milling have been perfected to remove this good baby food.

But this, of course, makes a demineralized and devitaminized food. The kernel of wheat that is left, while still a good food for energy, cannot be depended upon for minerals nor for vitamins. However, even the whole wheat, while it contains every food element, is not a perfect food alone for man or animal. Mainly because its protein is not a complete protein. All cereals are alike in this.

Animals fed solely upon cereals will not thrive, but

if some of the live part of the plant, the leafy part, and some food like milk, for the complete protein, are added to them, then the animal will thrive.

This does not mean that the grains are not good foods. They are especially good energy foods, and they are a valuable part of the diet.

Whole-wheat Bread

Until there is a greater demand for whole-wheat bread so that the whole-wheat flour is used up before it has time to spoil, the demineralized and devitalized flour will continue to be manufactured on a large scale. (My first notes read "demoralized" instead of demineralized. Not so bad?)

For children particularly, whole-grain bread should be secured if possible.

Baking powder and soda will destroy the vitamins in bread, so yeast, which contains a vitamin—the anti-neuritic vitamin—makes more wholesome bread for a steady diet than baking powder or soda. Fresh bread is not so wholesome as bread which is a day old, largely because it is soft and is not so thoroughly masticated, and so is apt to cause fermentation in the stomach and intestines. For this reason fresh bread is never advisable for children. Toasting bread makes it more easily digested, because the starch is converted to dextrin, which is the same thing that happens in its first stage of digestion, so it is in a way predigested. This, of course, applies only to the part that is toasted. Bread which is simply toasted on the outside and soft on the inside has little value over untoasted bread.

To be thoroughly dextrinized, bread should be oven toasted—that is, slowly dried and toasted throughout in the oven. In this way it is very wholesome, not only because it is easily digested, but because it has to be

thoroughly masticated in order to be swallowed and this gives the needed exercise for the teeth and jaws. That is the reason we advise this type of bread for our children.

A slice of bread toasted has the same caloric value as it had before it was toasted. So often my overweight followers tell me they can't understand why they are fat—they never eat bread—only toast!

Macaroni and similar foods made from the hard Italian wheat have a relatively high percentage of protein (15 per cent). Combined with milk or milk and cheese to add their complete proteins, they are excellent foods and can take the place of a meat dish.

**Macaroni and
Similar Foods**

CORN

The same thing that I have said about the milling of wheat applies to corn. A large part of the vital parts are taken away from the flour and used for animal feedings, as are the bran and germ of the wheat. But we are feeding the wrong animals! Our children (and we ourselves) need them, and the time is coming when their value will be known and there will be sufficient demand to keep the supplies moving so fast they will not spoil.

RICE

Rice in Asia occupies the same place as wheat does in America and Europe. It is used as the main starch food there. The rice, like the other grains, becomes infected with insects unless the bran and the germ layer are removed. This removal of the bran and germ is called polishing.

In Asia, those who live largely on polished rice and fish develop the disease beriberi, a severe inflammation of the mucous membrane of the stomach and intestines, and of the nerves. I have told you of this under vitamins.

The fact has become pretty well known that polished rice is a very deficient food, and now some manufacturers are putting on the market a brown rice and giving the impression that this brown rice is unpolished. According to McCollum, ordinary brown rice is a polished rice and differs from the white rice only that it has not received a coating of glucose and talcum. Stating that the rice is unpolished is a fraud. *Polished rice is a good, wholesome energy food*, but of course cannot be depended upon for vitamins nor mineral salts. Rice is not a high protein food. It averages about 9 per cent protein, and its proteins, like the proteins of all the cereals, are not complete; so rice should not be served as a protein food, but as a starch vegetable, unless combined with milk or milk and cheese.

OATS

The oat differs from the other cereals in that it has a large percentage of protein, but its protein, like the other proteins, is incomplete. The germ of the oat is now being removed by the modern process of milling. You know what that does to it.

Oatmeal is a splendid cereal for children because of its high protein and iron and lime. Add milk to complete its protein.

BUCKWHEAT

Buckwheat is largely used for pancakes and griddle-cakes. The coloring matter in buckwheat affects some people by sensitizing the body to light, and they develop what is known as the buckwheat itch.

CHAPTER V.

EGGS

McCOLLUM classes eggs among the foods he has called protective foods because of the complete proteins in the white and yolk, and because the yolks contain the very valuable growth-promoting and the anti-ophthalmic vitamins, and they have a high iron and phosphorous content.

The egg yolk is the sole food for the growing chick and the white is the part that develops into the structure of the chick; so the egg must, of necessity, have many very vital elements.

Raw eggs are more easily digested if lightly beaten because this breaks up the rather tenacious white of the egg. When eggs are cooked for children, they had better be soft-boiled or coddled, poached or shirred. Hard-boiled egg yolks are more easily digested than the hard-boiled whites of the eggs. The dark green color sometimes noticed on the outside of the yolk of a hard-boiled egg is due to the chemical change of the sulphur and iron. It is not harmful.

The yolks very seldom disagree and, as they are such a valuable food, they should be included in the diet for children often. In malnourishment and anemia, they are a very valuable means of increasing the calories of energy food, vitamins and iron without increasing the bulk appreciably. (See "Rickets," Page 213.)

The white of the egg is pure protein known as albumin. Of course, it is an animal protein, and with other

animal proteins (except milk) tends to intestinal putrefaction if taken in excess. Some children, and adults, too, become sensitized to the whites of the eggs. I have discussed that under "Eczema" (see Page 218). If the child should be one who cannot take the egg white without a skin eruption, then use the egg yolks; for, as I told you, egg yolks very seldom disagree in any way.

Eggs spoil rather easily and stale eggs are dangerous, so let's have them fresh. Keep them, with the milk, in the coldest part of the refrigerator.

The shell of the egg is porous and impurities can be absorbed, so see that the eggs are clean before putting them away.

Eggs are affected by the diet and health of the hens. So give the hens of your dealer absent treatment. It will work—maybe.

Duck and goose eggs are a little richer than are hen's eggs and are stronger flavored, but they are good foods if you like them.

Sometimes children who will not take milk plain, will take it in the form of eggnogs. In this way you get two good foods in 'em. You see I am always thinking of the finicky child. The normal healthy child will eat nails.

According to Kellogg, most egg substitutes have no egg in them, but are made from skimmed milk mixed with flour and dried. Others are made from the blood of animals, and they are not wholesome.

**Egg
Substitutes**

CHAPTER VI

FRUITS

FRUITS should be part of the daily diet for all of us. We have long known the value of lemon juice and orange juice as a preventive of scurvy, but it is only in recent years that we have realized the importance of fruits as a daily part of the diet, rather than as an occasional treat. Fruits are a splendid source of vitamins, especially the anti-scorbutic (scurvy vitamins). They are also valuable sources of mineral salts.

Fruits are not only a delicious food, but they act as a stimulant to the digestive juices and to the muscular walls of the stomach and intestines, thereby acting more or less as a laxative. They also have an antiseptic action and help to prevent putrefaction.

The sugars of fruits are the most easily digested of the sugars and they are practically ready for immediate absorption. Their juices are especially valuable in fevers. (See directions for feeding in fevers.)

While most fruits have an acid reaction, their salts when oxidized in the body yield the alkaline salts, and in this way help to keep the normal alkalinity of the body. The only fruits that are listed as an exception to having this alkaline effect are the plums, prunes and cranberries, and their acid salts are largely in the skins, so discard those where there is a tendency to acidosis. (See "Acidosis," Page 185.)

Fruits instead of being harmful in rheumatism are helpful.

Fruits are best taken fresh because boiling destroys most of the vitamins, with the exception of the raspberry and lemon juices—their vitamins seem to withstand heating. If sugar is added to stewed fruits it had best be cooked with the fruit, because in this way the cane sugar is changed to dextrose. This brings it to the second stage of digestion so that it is more easily assimilated.

**Stewed
Fruits**

Preserved fruits are a concentrated and excellent energy food, but because they are so concentrated they should not be given to children until the growth needs of the body are supplied. They would have the same effect of cloying the appetite that candy has.

Dried and canned fruits do lose a large part of the anti-scorbutic vitamins, but their value in other respects remains the same, so they are still valuable foods when the fresh fruits cannot be obtained.

**Dried and
Canned Fruits**

The tomato, while we ordinarily think of it as a vegetable, is really classed as fruit. Because it is so rich in all three of the known vitamins, even when canned, it now occupies a very high place in the scale of food values. It is so rich in water that it cannot be counted upon for an energy food as it takes about a pound to give 100 calories.

Dried fruits can be exceedingly dirty. It is best to wash them thoroughly, then steam a little in a colander, and dry in the oven.

Fruits eaten raw should be very thoroughly cleaned, especially those which have been exposed to street dust or unclean handlers.

Botanically, nuts are classed with the fruits, but they are totally different in properties. They

Nuts

are a splendid source for fats and proteins (with the exception of chestnuts, which are mostly carbohydrate), while the fruits are very low in fats and proteins.

The protein element varies from 10 per cent in the walnut to as high as 18 per cent in the almond. Nut protein is of a very high grade.¹ The fats in nuts are easily digested because they are in the combined emulsified form.

The peanut is classed as a legume with the beans, peas and lentils, but we naturally think of it as a nut on account of its name. It has as high as 20 per cent protein of a very good grade.

As very little meat is advised in the diet of children, the protein of nuts, especially in the form of nut butter thinned a little with milk or cream or water, is a very valuable addition to their diet. If given as nut meats, see that they are thoroughly masticated. We will have to remember that nuts are a concentrated food and should not be eaten after a meal, but be considered as part of the meal. They are especially recommended for pregnant and nursing mothers for part of their protein needs.

¹ Recent experiments show that the protein of nuts is a complete protein. See Proteins, Page 11.

CHAPTER VII

MEAT

THERE is a difference of opinion among the physicians about giving meat to young children. Many of them teach that it is better for children under seven years not to have any meat, while others advise small amounts of scraped beef and other tender meats as early as the second year.

It is true that meat, being a high animal protein food, is more liable to putrefaction in the intestines than other proteins, and it is also true that meat has waste products which vegetable proteins do not have.

Cattle and pigs may be infected with tapeworm embryos and pigs may also be infected with trachina, which is a very tiny but pernicious worm. If the meat from these infected animals gets on the market and is eaten without very thorough cooking, it may infect the consumer. If there are enough meat inspectors and they are efficient, meats of this character do not get on the market.

Pork in any form except bacon is not advisable for young children, but beef and other meats are often advised. They are easily digested and they often stimulate the appetite so that more food is taken. They should not, however, take the place of milk in the diet.

Vegetarians, or, rather, the lacto-ovo-vegetarians, those who take milk and eggs, have proved that it is possible for us to get along—and thrive better in many cases—without meat and fish. But special care has to

be taken to see that sufficient animal protein in the form of milk and eggs is taken, because most vegetable proteins are not complete.

We have to remember that children need a greater proportion of protein than do adults, because they have to supply the protein for growth as well as repair. (See Proteins, Page 11.)

Raw Food Diet

McCollum has proved that with the omnivorous type of animal, one that eats everything—and man is omnivorous—it is very difficult to derive the diet solely from the vegetable kingdom. That is because the digestive tract is not large enough to care for the amount of leafy foods necessary to balance the diet, and to supply the deficiencies of the seed and root.

This fact is the reason a diet composed solely of raw foods is not practical.

When Meat Is Advisable

It occasionally happens that if children take much milk they will not take enough solid foods and malnutrition results, for milk is deficient in iron. In these cases giving less milk and adding a little meat—which has iron—to the diet may be the wisest course. (I have told you meats often stimulate the appetite so that more food will be eaten.)

The glandular organs of animals, the liver, sweetbreads, brains, kidneys, not only have the complete protein, but also contain vitamins. And according to McCollum they are a better form of meat than the purely muscle meats.

Excessive meat eating with its train of harmful effects has been one of the serious dietetic mistakes of adults, and it is very essential not to permit children to get an excessive liking for it. (It is probable in many

cases that the mistake of adults has not been so much the excess meat, but the lack of sufficient vegetables and fruit.)

Meats are high in phosphorus and iron, but not high in lime and vitamins. They are digested into acid-forming elements and must be combined with the foods that are not acid-forming. The usual potato is an ideal combination with meat, because potato has high alkaline-forming elements, especially potassium. But this isn't enough. A green-leaf vegetable in liberal amounts should always tag along as a protector.

CHAPTER VIII

MILK

As milk is the one indispensable food of infancy and childhood and almost as indispensable for adults, it is important that you know a good deal about it.

I have already explained about its complete proteins, especially adapted for growth, and I told you about its wonderful calcium and phosphorus and vitamins. I haven't spoken of its carbohydrate content, and that is important too. Its carbohydrate, in the form of milk sugar, is easy to digest and it has a favorable influence on the bacterial flora of the intestines. I have explained about the bacterial flora on Page 188. Milk is just as beneficial for adults as it is for children.

Illogical Reasoning

You will sometimes be told that milk is an unnatural food after the teeth are in, and that nature didn't intend the cow to furnish milk for humans, but for their calves (the cow's). If we use that line of reasoning, then we wouldn't eat anything. The wheat grain couldn't be considered food for humans; nature intended it as a seed to produce more wheat. And how about eggs?

Nature intended us to use our common sense (if she endowed us with any) and eat the things that we have found best for us; and the fact that she has designed milk so that it supports human life for almost a year after birth would seem to indicate that it must be a mighty good food. It is a good food.

The longest-lived and most virile peoples in the world, the pastoral Arabs and other pastoral people of Europe and Asia, subsist largely on milk. When Metchnikoff first called attention to this he thought their longevity and virility were due to the lactic acid bacteria in their soured milks. We know now that it was the milk itself and not its souring bacteria that was effective.

A pint a day for adults and a pint and a half to a quart, usually, for children should be the allowance in the household. Buy less meat and more milk, mothers! It is really less expensive even when it is most expensive.

Now I have told you the importance of milk, I must tell you the importance of its being good milk. The following is a quotation from Roseneau's "Preventive Medicine and Hygiene":

**Milk Must
Be Pure**

"Milk is probably responsible for more sickness and deaths than perhaps all other foods combined. (He means, of course, impure milk.) There are several reasons for this: (1) Milk conveys a greater variety of infections than any other food. Bacteria grow well in milk; therefore, a very slight infection may produce wide-spread and serious results. (2) Of all foodstuffs, milk is the most difficult to obtain, handle, transport, and deliver in a clean, fresh and satisfactory condition. (3) It is the most readily decomposable of all our foods. (4) Finally, milk is the only standard article of diet obtained from animal sources consumed in its raw state."

You can see from this the importance of clean, fresh and pure milk, especially for babies and children. One drink of stale milk may cause such a severe diarrhea that the child may have its intestinal tract irritated for a long while, and thus its resistance lowered; and one

drink of a milk containing disease germs may give the baby or child the diseases which the germs are responsible for. Because milk is so easily contaminated, do not ever buy from open cans. Selling milk from open cans really should be prohibited.

Do not forget, mothers, that milk can be contaminated after it leaves the milk cart. First, if the bottle of milk is left on the doorstep, cats and dogs may lap the top—this frequently happens—and flies, perhaps carrying disease germs, may light on it; so unless you carefully wash the top with boiling water or sterilize it by wiping with peroxide of hydrogen, when the milk is poured over the lip of the bottle it may become contaminated. Second, it may become contaminated by diseased persons in the household who handle it, unless they are very careful.

All food must be protected from dust and insects—and especially must milk.

Milk will also absorb odors which may not be harmful, but disagreeable. Unless milk is kept in the original bottle, it should be kept in a seamless, non-rusting dish. It should be placed in a refrigerator, on or touching the ice. If not possible, then in a basin of cool running water.

If milk is to be kept over a day and you have no ice chest, it is best to boil it and cool it as rapidly as possible under running water. If you use it the second day, boil it again before using.

Grades of Milk

Milk is graded in most cities by the standard recommended by the New York Milk Commission. The grades are: Certified, Grade A, Grade B, Grade C.

The certified milk, being the highest grade, should be secured if it is possible, especially for the babies. Certified milk is milk of the highest quality, of uniform com-

MILK MADE THE DIFFERENCE



THESE CHICKENS WERE HATCHED THE SAME DAY, BUT—READ
THE TITLE. OTHERWISE THEY HAD THE SAME RATIONS.

position, obtained under special sanitary conditions from healthy cows and under the special supervision of the Medical Milk Commission. This milk is fresh, clean and unadulterated, and free from disease germs as far as is humanly possible. On account of the expenses incurred to produce this milk, it is of course higher in price than the other milks.

Grade A milk, both raw and pasteurized, is next in quality to the certified. Get this if you cannot get the certified. The other grades should not be used except in cooking. Grade A pasteurized is safer for the babies than the raw.

Pasteurized milk is so called in honor of Louis Pasteur, the great French scientist, whose discoveries in bacteriology revolutionized our ideas of many diseases and which form the basis of our preventive medicine. **Pasteurized Milk**

Pasteurized milk is milk that is heated to a temperature of 140 to 145 degrees Fahrenheit and kept there for thirty minutes. (212 is the boiling temperature.) Sometimes it is heated higher than that and not held so long at the high temperature. The lower temperature at a longer period is used most now, for it alters the flavor of the milk less.

Pasteurization may be done at home by placing the bottle containing the milk in a pan of water, with the water coming to the height of the milk in the bottle. Bring the water nearly to a boil and set aside for thirty minutes; then take the bottles out, rapidly cool, and keep cool. **Home Pasteurization**

Pasteurized milk loses none of its food value, with the exception of part of the vitamins which protect

against scurvy. This is only of importance when it is given to babies who are on an exclusive milk diet. Pasteurization kills the dangerous forms of bacteria which may get in the milk, and unless you can get the certified milk, it is much safer to have it pasteurized or boiled. The anti-scorbutic vitamins can be supplied by orange juice, or tomato juice, or cabbage juice, or the juice of other fresh vegetables.

Milk which is Pasteurized or boiled does not sour so rapidly as raw milk, for the lactic acid bacteria which cause souring are killed; and this must be remembered, for these milks may be stale and unwholesome, without tasting sour.

Sour Milk

Milk sours because of the multiplication of the lactic acid germs—present practically everywhere—which are beneficial instead of harmful. They rapidly destroy the putrefactive germs in the milk, so clean milk which has soured to the solid stage is a wholesome food.

Buttermilk and artificially soured milks are also wholesome foods and are more easily digested by some than plain milk. As buttermilk is the product which is left from the cream after it has been churned to butter, it lacks the fat with its growth-promoting vitamins and it has not the energy or caloric value of whole milk—only half as much (10 C to the oz.). The energy value and the vitamin value of fermented milks depend upon whether they are made of whole or skimmed milk.

Thunderstorms

There is a common impression that a thunderstorm will cause milk to sour. This is not true. It is the hot weather and not the thunder which causes the souring. The fact that the milk was at the point of souring at the time and the coincidence of the thunder

gives rise to the impression. Milk that is cooled rapidly after milking, and kept cool, will not sour during a thunderstorm (unless it is ready to sour). Heating milk which is nearly ready to sour will cause it to turn and curdle.

Canned milk is a milk of which part of the water has been evaporated. It is of two types, the sweetened and unsweetened. The anti-scorbutic and anti-neuritic vitamins and some of the mineral elements of the original milk are lost, but it is still a good food because it is milk, and if the fresh milk cannot be obtained it can be used, if necessary, for children must have milk in some form. Needless to say, it is not the best milk for children.

**Canned or
Evaporated
Milk**

Babies that are fed upon sweetened condensed milk exclusively are fed upon a starvation food as far as the bones and muscles are concerned, for when it is diluted so that the baby can take it, the protein, fats and mineral elements are too low and it is still too high in sugar; so that while it will make fat babies, they are not strong babies. Sometimes babies that are not doing well on other milks will be benefited for a time upon sweetened condensed milk, and physicians often prescribe it to tide babies over until they can use the fresh milk. However, if it is continued for any length of time—unless other foods are being given to supply its deficiencies—the babies are exceedingly apt to get rickets, and while they will get fat, they haven't the normal resistance to disease.

**Starvation
Diet**

The milk powders consist of either whole or skimmed milk which has been deprived of its water. Dried whole milk has all of the food properties

Dried Milks

of fresh milk except that a large part of the anti-scorbutic vitamins have been destroyed.

Powdered milk has proved a very satisfactory method of preserving milk. There is a brand of dried milk (Dryco) which is put up under special sanitary conditions, and children's specialists are advising this for babies when it is difficult to get wholesome fresh milk.

The vitamins, of course, have to be supplied with the addition of orange juice, or tomato juice, or the juice of some other fresh vegetable.

Filled Milk

Filled milk is skim milk emulsified with some vegetable oil, usually cocoanut oil. It is a good food and equal in energy or caloric value to ordinary milk. *It lacks the growth vitamins of cream so is not advised for babies and children.*

Goat's Milk

Because goats very rarely have tuberculosis, goat's milk is often recommended for babies and children. It has a characteristic flavor which is disliked by some. Goat's milk has to be modified for the babies, just as does cow's milk, for its elements are in practically the same proportions. It will occasionally happen that the baby will thrive upon goat's milk when it does not thrive upon cow's milk. I understand that goats are not difficult to care for, and if you have the time and the place, you might as well have the goat.

MILK PRODUCTS

Whey

Whey is the water part of the milk after the cheese is made. As it contains most of the milk sugar and considerable of the mineral elements and some vitamins, it is still of value. Its caloric value is but seven

calories per ounce, as compared to twenty calories per ounce of whole milk.

Cream is the fat of the milk. It rises to the top after standing because its specific gravity is less than water. (That means it is lighter than water.) The percentage of cream in milk depends upon the breed of the cow, Guernseys and Alderneys being the richest. For babies this higher cream milk is usually less digestible than that of the ordinary herd cows. (The herd cows' milk is also considered preferable for babies because it varies less.) Cream is a wonderful growth vitamin food and it is high in energy or caloric value, and is usually very easily digested after babyhood. **Cream**

Butter is made from the cream or fat of the milk and it also contains a small per cent of the other constituents of the milk. Butter is a very superior form of fat, because it is made from milk which has such valuable growth and anti-ophthalmic vitamins in it. This means that a proper amount of butter fat in the diet will prevent a serious form of eye disease as well as promote growth and give energy. **Butter**

A certain amount of butter should be used, but because it is good to taste sometimes it is used excessively by children, and adults also. It is a free fat, and a free fat used in excessive amounts will irritate, as I have explained to you when I talked on fats.

Renovated butter is rancid butter which has been washed with water and reflavored with some sour cream. It is not wholesome. You can distinguish between this renovated butter and ordinary butter by boiling a small amount slowly in a small pan or table- **Renovated Butter**

spoon, stirring it with a match or toothpick. If it foams and sputters excessively you will know it is the renovated butter. This is also a test for margarines.

Margarines I'll speak of margarines here because they are sometimes used in place of butter.

Margarines are made of beef fat or vegetable oils sometimes flavored with milk or butter. They are wholesome energy foods and can be safely used by the adult members of the family, but should not be used by the children unless they are getting a plentiful supply of whole milk, and even then it is better for them to have the butter. This is because the margarines do not contain the growth vitamins. (Beef fat margarines may contain a little.)

Cheese Cheese is a splendid food because it is a concentrated product of the splendid milk, and therefore very high in complete proteins and the valuable mineral elements, especially lime. A large part of the vitamins have been lost except in the full-cream cheeses, so we cannot count on cheese for vitamins.

Cheeses are concentrated food, therefore large amounts will cause indigestion. They are such good protein foods that they should be depended upon more for protein, and less meat taken. Old and strong cheese should not be given to children, but cream and cottage cheese when freshly made are wholesome and nutritious and should be included in their diets.

Ice Cream Ice cream is most wholesome and delicious if it is made from clean milk and cream and other ingredients. Ice cream varies so much in its proportion of cream that its food value varies accordingly. It can be very dangerous if it is made of impure materials. It

can cause a virulent type of diarrhea, and can also transmit disease germs, for freezing does not always kill them. Therefore, it is very important to see that it is pure. It is so delicious that it is liable to be eaten in excess, and if this is done it causes trouble, naturally.

If eaten in moderation and eaten slowly enough so that it is melted before it reaches the stomach, it is an excellent food and even invalids can digest it. The chief objection to ice cream for children is that it is consumed so often between meals that the appetite for the growth foods is lessened. If it is made of pure materials and eaten in moderate amounts, it can be a treat for them for dessert two or three times a week—any age after two years.

BAD MILKS

Milks may take on various colors at times— **Colored Milk**
blue, red, green, yellow. This may be due to contamination by dirt, or it may be due to the growth of microörganisms which produce coloring matter. They are not disease germs, but they make the milk unwholesome and it should not be used. Red milk may also be due to blood from a diseased udder, or to the food, such as madder, the cow has eaten.

Slimy or ropy milk may be due to disease matter from the udder, or it may be due to a type **Slimy Milk**
of bacteria which produces slime. In some countries these slimy bacteria are introduced into the milk on certain leaves upon which they are found. The product is considered a delicate food. However, you had better consider slimy milk unwholesome, and report it to your health department—with appropriate words.

Bitter Milk

If milk is bitter when first milked, it is probably due to some food the cow has eaten—lupins, turnips, wormwood, etc. If it becomes bitter after standing a few hours, it is due to the growth of bacteria and putrefaction. *Don't use it.*

**Adulterations
of Milk**

Skimming, watering, the use of thickening agents and other chemical preservatives, all are prohibited by law, but sometimes are still practiced. Skimmed milk is a very wholesome food, but if sold for whole milk, of course, this is a fraud. Skimmed milk has all the minerals and growth proteins left in it, but it cannot take the place of whole milk in children's diet unless a plentiful supply of butter is given them on account of the loss of the growth vitamin. It has half the caloric or energy value of whole milk.

Dirty Milk

If you filter a pint of warm milk through a little disk of absorbent cotton, the stain which is left is an indication of how much dirt there is in it. This simple test is one of the practical routine tests for dirt used in the public health departments. These disks are dried and kept with the records of the health department. If you want to test your milk you can get some of these disks from the health department, and if anything but a yellowish stain appears, it would be a good idea to send the test to your health department. Beware of dirty milk—it is dangerous milk.

**Bacteria
in Milk**

There are many bacteria in milk. Some of them get in the milk before it leaves the udder, others get in from the utensils, dust of the air, etc. Most bacteria get into the milk with the dust that falls from the udder and the belly of the cow during milk-

ing, so it is important that the regions around the udder be washed before the cow is milked, and that a small-topped milk-pail be used. Some bacteria get in from dirty handlers and some get in from the household. They multiply very rapidly unless the milk is rapidly chilled and kept chilled.

Bacteria are very minute vegetations. Most of them are less than $\frac{1}{25000}$ of an inch in diameter. They may be very minute, but how they can multiply! Once every twenty minutes to a half hour is the rate. One bacterium (germ) divides and produces two bacteria, simply by splitting into two. If you want to realize how many one germ will become in twelve hours, work it out. One germ in half an hour is two germs; the next half hour is four germs; the next eight; the next sixteen; the next thirty-two; the next sixty-four. You continue the figuring (I'm tired), and you will find that there are billions at the end of twelve hours. If bacteria were not destroyed about as rapidly as they are produced by outside agencies and their own waste products, we would soon be crowded off the earth by them.

Fortunately most bacteria are harmless and many are beneficial. For instance, the lactic acid germs in milk. It is only the undesirable citizens—the disease producers—of the germ world that we have any quarrel with.

The disease germs that have been known to grow in milk are the germs of tuberculosis, typhoid and paratyphoid, diphtheria, scarlet fever, septic sore throat, Malta fever, foot-and-mouth disease and dysentery. Milk-borne epidemics are not rare. In Boston, from 1907 to 1911, there were five outbreaks directly traced to infected milk, causing a

Diseases
Spread by
Milk

total of over 4000 cases of sickness, including diphtheria, scarlet fever, typhoid fever and septic sore throat.

Milk becomes infected from human sources—at the farm or dairy, in transportation, and at the household. Milk may be also infected from the cows themselves, especially from tuberculosis. Tuberculosis in cows is not at all uncommon, and it is estimated that from 5 to 7 per cent of human tuberculosis is of bovine origin. A very much larger per cent than this of tuberculosis in children is caused by the bovine tuberculosis. It usually takes the form of glandular or bone tuberculosis. Many thousands of children suffer from this form and many die from it.

**The
“Accredited
Herd” Plan**

Tuberculosis will be eradicated from cows when the “accredited herd” plan is made universal.

Under this plan, the Federal and State authorities coöperate with the dairyman, slaughter all cows that have tuberculosis and reimburse him for them.

I do not want to frighten you about milk, mothers, only to the extent that it will make you be careful of your milk supply. If you cannot get certified milk, and are not absolutely sure of the purity of the milk you do obtain, see that it is pasteurized or boiled, because either of these processes will destroy the disease germs, although, of course, it will not make poor or dirty milk good nor clean.

HUMAN MOTHERS' MILK

Why do we advise so strenuously that you nurse your babies when the scientific feeding of infants has been perfected so remarkably in recent years? For this

reason, mothers: No matter what advances can be made in artificial feeding, we probably never will be able to reach anywhere near the perfection that nature reaches.

Nature perfects a milk for each species, which is especially designed for the needs of that particular species. For instance, she plans cow's milk for the special development of the digestive apparatus and the rapid growth of the baby calf. It is much stronger than human milk, having more than twice the amount of protein and four times the amount of calcium salts. This is necessary because the calf reaches puberty in two years, which is one-seventh the time required for the human baby to reach puberty; and its food must be stronger in order to start this rapid growth. The curds from cow's milk are tougher and harder to digest than human mother's milk, because the baby calf's stomach digestive apparatus must be trained to digest hay and other tough foods.

The whale and the seal mothers' milks are exceedingly strong and contain a very large amount of fat, because their babies need this strength and fat to protect them in the icy waters.

Human mothers' milk is designed especially for human babies' digestive tracts, and for their development at the period of life when they grow faster than at any other period. Human milk contains protective substances against the ordinary infectious diseases which all other animal milks do not possess, because these animals do not have these diseases.

When a baby nurses it gets its milk directly from the producer to consumer. There is no danger of its getting any cow diseases such as bovine

**There's a
Reason**

tuberculosis or foot-and-mouth disease. There is no danger of its getting diseases with which a cow's milk may be contaminated by the people who handle it. It does not have to be modified to suit the baby's requirements, because it is made to order for that baby originally. There are no bottles and other utensils to sterilize. If baby gets human milk his chances of living through babyhood are six times greater than the baby who must be bottle fed. His prospects for a healthy childhood are MUCH greater and a healthy childhood means better prospects for a healthy maturity. Oh, there are many reasons why the human baby should have the human milk designed especially for it. But if it cannot have human mother's milk it must have some other milk, remember.

MOTHERS' DIET

Just a little word right here, mothers, to help you in the manufacture of a high grade of human milk. If you will plan your diet to include the foods which I have talked about as being important for the children, you will produce a good grade of milk, provided the other hygienic rules are observed. You must remember that you need mineral elements and the vitamins and the high-grade protein before the baby is born, also, so that you will supply it the needed elements and will not rob your own system to do so. Milk, cheese (especially cottage cheese) eggs and nuts had best be depended upon for most of your protein needs instead of meat. Greens and fruit, of course, in liberal amounts. I have explained the value of these, so you will understand why.

Remember that while you really must eat for two, both before the baby comes and afterward, you do not have to eat for half a dozen. So many mothers do overeat and bring on very bad conditions for both themselves and their babies. It is only during the last half of pregnancy that the baby grows appreciably, and in reality very little more than the usual amount of food need be taken. Excess foods fatten you and your baby too. That makes labor harder. A gain of fifteen to twenty pounds in your weight will cover the gain of the babe and placenta (after-birth), water and the membranes. Overeating is one of the most frequent causes of injuring the kidneys and causing eclampsia (convulsions of pregnancy).

Overeating while nursing the baby results in making you fat and it does not improve your milk; in fact, it makes it poorer in quality. If you are already much overweight you can reduce with improvement to your health both in pregnancy and while nursing.

CHAPTER IX

VEGETABLES

The Leafy Vegetables: Protective Foods

THE late studies on nutrition have proved that the leafy vegetables, such as spinach, beet and celery tops, lettuce, dandelion, etc., have such high qualities of vitamins and proteins and mineral salts that McCollum has classed them with milk and has given them the name "protective foods," because if they are eaten in sufficient quantities they correct the deficiency of the seeds (cereals and legumes) and the root vegetables (potatoes, beets, turnips, etc.).

The green-leaf vegetables are high in iron, and you know how important iron is in the food for the blood. In the experimental laboratories, animals which are fed for any length of time on a diet lacking green-leaf vegetables, will show very poor nutrition; but when these are added in liberal amounts, their recovery is astounding. The reason for the high value of the green-leaf vegetables is that they are composed of living growing cells, while the other parts of the plant, the seed and the root, are mere storehouses of food for the plant.

Legumes: Peas, Beans and Lentils

It used to be thought that because the legumes were high in protein, they could serve as a substitute for milk and for other animal protein, but animal experimentation has shown that the protein in legumes is an incomplete protein, the same as the protein of seeds, and will not suffice to build up animal tissue if used alone.

Like the grains, they are splendid, useful foods and should be used for variety, but are not to be depended upon for all the protein supply.

The navy bean has a characteristic carbohydrate content which is difficult to digest, and in many people they ferment and cause much discomfort by gas. Remember this when you give them to young children.

The soy beans, Chinese beans which are now also used in America, are a very valuable source of protein and fat. They have so little starch that they are especially valuable as a protein and fat food when the starches have to be limited, as in diabetes. The sprouted soy beans are used in the Chinese chop suey. They are a good source of the vitamins.

The potato is one of our most important energy foods and has a good content of the alkali mineral salts and a fair content of iron. It is justly one of our most valuable foods and one that we never tire of. The potato has also the anti-scorbutic and the anti-neuritic vitamins, which apparently withstand heat more than the anti-scorbutic vitamins in the other foods. After potatoes were introduced in Europe and used in liberal quantities, the number of cases of scurvy was markedly lowered.

Potato

Potatoes have an unjust reputation as a fattening food. Weight for weight potato is less fattening than bread. Three ounces of potato is 100 C's compared to two ounces of bread. The reason that they have gotten this unsavory reputation for producing fat is because they are usually accompanied by a very liberal amount of butter or gravy, both of which are high in calories. So it's the company they keep that has caused the scandal.

The protein of potatoes, while not very high—11 per

cent of the total food value—is a protein of very good value. More potatoes and less white bread is a good food slogan.

Dried Potatoes Dried potatoes have the same value as the fresh potatoes as an energy food, but drying, of course, destroys most of the vitamins.

Because a large proportion of the valuable salts and the vitamins are right under the skin—largely with the eyes, the part that is capable of growing—they should not be pared before cooking even for mashed potatoes, unless the parings are used in the soup stock. (See recipes.)

Baked potatoes are usually considered the most wholesome because they are mealier, but if cooked until the skin becomes very tough, a large part of the minerals and the vitamins are still left adhering to the skin. This objection, of course, would be overcome if the skins are eaten. They are also good roughage, so that is a good plan. The skin itself has no particular value, it is only what sticks to it that is valuable.

Sweet Potatoes The sweet potato has the same properties as the white potato, but is higher in starch. It also has some sugar, so, weight for weight, it is a higher energy food than the white potato.

The Dasheen The dasheen is a South American tuber which has recently been introduced into the United States by the Department of Agriculture. It is a little richer in starch and protein than the potato and, as it is so easily grown, it is going to form a valuable addition to our diet. Its qualities are about the same as the potato. Grow some in your garden.

Beets, carrots, radishes, turnips, onions, parsnips, etc., should be included in the diet often, because they are not concentrated foods and they have laxative properties, mineral elements and vitamins. Most of these foods if ground fine are more delicious raw than they are cooked. In this way all of their vitamins and mineral salts are saved. (See "Vitamins," Page 22.)

CHAPTER X

SHALL WE USE NO SALT?

“CAN that which hath no savor be eaten without salt. Or is there any taste in the white of an egg? My soul refuseth to touch them. They are as loathsome food to me.”—Job 6: 6-7.

There is no doubt we use excessive amounts of salt for seasoning, and this excessive amount is very harmful. As is usually the case when we find one extreme is harmful, we are apt to go to the other extreme, and now some people are advocating the elimination of all salt in the food, both in cooking and at the table.

Kellogg believes that a salt-free diet, or at least the very minimum of salt, should be used—and he brings forth considerable evidence to support his views. There are others equally authoritative on the subject of nutrition who believe that the lack of all added salt is harmful, and that a moderate amount should be taken. Hastings has recently shown that rats and mice will not thrive so well on a salt free diet.

Bunge believes that while one might live without the addition of salt to the food, yet without salt we would not be inclined to eat some of the foods that are necessary for us. Sherman supports him in his views. They both emphasize the fact that we take altogether too much salt with our foods, and advise that we cut it down markedly.

Most animal historians say that the herbivora (vegetation eaters) seem to require salt and will go long dis-

tances to secure it if it is not supplied. The carnivora (flesh eaters) do not require it, because they get sufficient salt for their needs in the bones and organs and blood of their prey. Most of us are omnivorous (*omnis*: all; *vorate*: to eat greedily!)—that is, we eat both animal and vegetable food. But we do not eat bones and fresh blood, the chief supply of salt to the carnivorous animals.

Sodium chloride—the chemical name for common salt—occurs in the blood and other fluids, and is necessary to maintain their normal pressure and reaction. It is very necessary for the hydrochloric acid of the stomach.

**Sodium
Chloride
Very
Necessary**

It is estimated that the body contains about three ounces of sodium chloride. Very little of this is eliminated daily. However, this amount that is eliminated must be re-supplied; and if we are going to eliminate all added salt, then we must give very much more attention to the foods that are rich in it.

Most minerals—inorganic elements—have to go through the plant laboratory to be made into organic forms before they can be used by the animal system; but salt, lime, phosphorus, and possibly iron, are some exceptions, as proved by experimental studies in the feeding of animals. This does not mean, however, that the organic forms are not the best forms.

The amount of water retained in the tissues has a direct relation to the salts we supply in our foods and the body needs a lot of water.

Salt is eliminated by the kidneys and skin, so in disorders of the kidneys and skin, and in some forms of heart disease, when salt cannot be eliminated properly, too much salt is retained in the tissues and an excessive amount of water must be retained to dilute it. Nature

endeavors to keep the tissue fluids and blood normal. Under these conditions a salt-free diet is advisable. This means no table salt either in cooking or at the table. In epilepsy, the elimination of all salt is also being tried now. One of the causes of high blood pressure is excess salt. So as a preventive measure and as a treatment of this disorder, the very minimum of salt is advised.

I do not believe there are sufficient data to support the theory that all salt should be eliminated, except in these abnormal conditions. It seems to me the wisest course would be to do as Gautier, Sherman, Bunge and other authorities advise—that is, to cut salt down to the minimum, but not to cut it out entirely.

As it is well established that excess salt is harmful, we should not allow our children to cultivate the craving for it. For salt in excess is purely a cultivated taste.

As for cutting it out entirely, let us think about it a bit. (And then don't do it.)

CHAPTER XI

POISONS AND THEIR ANTIDOTES

OCCASIONALLY children who are not taught not to put undesirable things in their mouths will sample rat poisons, matches, drugs, etc., if they are within reach. I think we had better talk a little on that subject, although the time might be better spent in telling you how to train the children not to put undesirable things in their mouths. Oh, well, we'll do that too.

The first thing the child is apt to put in its mouth is its fingers or thumbs, and thumb and finger sucking are pernicious, as many a misshapen face can testify. The moment you notice this habit, go into ecstasies a little over it if you want to, because it looks very cunning at first, but at the same time remove the little hand, slap it smartly so it hurts and say, "No, no." Continue this every time it happens. This method must be used with everything else the child puts into its mouth that it should not, until it associates the pain, "No, no," and the habit together. (If you put a pacifier in the baby's mouth, your hands are the ones that should be slapped.)

In case a child gets a small object in its mouth and is choking on it, turn quickly upside down and give the slap smartly on the back. If the child is too large to turn upside down, put over a chair with the head and chest down.¹

¹ If it should swallow the object, don't worry about it unless it is a poison, of course; for if it can go down safely it can usually come out safely. *Don't give a cathartic.* That will rush it

Never put poisons in medicine bottles without labeling them. Also get some tiny bells and tie one around the neck of any bottle containing a poison. This for the nightwalkers.

Needless to say, all poisons should be kept out of the reach of children. **WASHING FLUIDS ARE POISONOUS! DON'T POUR INTO A CUP OR GLASS WITHOUT THOROUGHLY RINSING THEM AFTERWARD.**

**What to Do
in Case of
Accidental
Poisoning**

Unless the poison is a strong acid or strong caustic, vomiting should be started immediately. The quickest way to do this is to hold the child with his back against you—perhaps you shouldn't wait to get to the toilet or a vessel—put your finger down his throat and hold it there until he vomits. You can press one side of his cheek in between his teeth with a finger of the other hand so he won't bite. If it isn't such an emergency case, give an emetic (something to make vomit): Syrup of ipecac, mustard water (a teaspoonful of ground mustard to a pint of warm water), soapy or greasy water, etc. **SEND FOR A PHYSICIAN AS SOON AS POSSIBLE.**

FIRST: Emetic (unless caustic or acid—see below).

SECOND: Neutralize the poison. Remember alkalis neutralize acids and acids neutralize alkalis. In the case of strong acids and caustics this should come first, then the vomiting. This is done so that the poison will not cause a double burning after it is vomited.

through and perhaps do damage. Feed the child a dish of cereal bran every meal if he is old enough. That will coat it. If he is not old enough for cereals, feed the regular diet, omitting the fruit juice for a few days. Watch the bowel movements for its appearance to ease your mind. Your physician may decide to have an X-ray picture to watch its progress if it is a pointed object. It may be a week or so before it appears.



Name _____

[illegible]

If you are going to gain, put your present weight in the bottom weight space at the left, and in each space above mark in one pound higher than the preceding.

If you are going to lose, begin at the top and put one pound less in each succeeding space.

Put a dot in the square opposite the weight you have attained and under the day and date of weighing. Connect these dots with a straight line and have the fun of watching your weight go up or down as you like it. Make one of these charts for every four weeks.

THIRD: Perhaps an emetic again.

FOURTH: If depressing, give stimulants. Strong green tea is good, for its tannin is an antidote to many poisons. If drug causes tendency to sleep, keep awake—slap chest, cold wet towels—walk around, etc.

POISONS

ANTIDOTES AND FURTHER
MEASURES

Acids

Alkalies

Acetic
Hydrochloric
Sulphuric
Nitric

{ Baking soda, milk of magnesia, or strong soapy water. Then give oils: olive, sweet, linseed, or cod-liver.

Carbolic
Lysol

{ Epsom salts—2 tablespoonfuls in cup of water. Weak alcohol (not wood alcohol) or whisky solution. Then whites of eggs and flour. Next make vomit. For external burns alcohol 50%.

Alcohol

Whisky
Brandy
Wine

{ Emetic, friction, cold to head, heat to feet and legs. Stimulants of strong tea or coffee by mouth or rectum.

Strong Alkalies

Ammonia
Quicklime
Caustic Soda
Potash
Lye, Washing soda,
Sal-volatile

{ Strong vinegar and water solution, lemon juice, tomato juice, etc. Then give oils or milk, or white of eggs. Then emetic.

Arsenic

Depilatories
Fowler's Solution
Rat Poison
Paris Green

{ Emetic. Then milk, white of eggs—emetic again. Give arsenic antidote (fresh mixture of tincture of iron and calcined magnesia). Give cathartic.

*Cough Mixtures
and Soothing
Syrups con-*

taining:

Paregoric
Laudanum
Belladonna
Atropin
Opium

{ Emetic. Keep awake 12 or 24 hours. Strong coffee or tea by mouth or rectum. Slap chest with cold wet towel. Heat to feet, cold to head. Artificial respiration if necessary.

Illuminating Gas: Same as for Cough Mixtures.

Iodin

{ Starch or flour mixed with water or milk.
Emetic.

Lunar Caustic
(Silver Nitrate)

{ Common salt in water (2 teaspoonfuls to a cup). Emetic.

Poisonous Mush-
room or Toad-
stool

{ Emetic. Stimulants. Cathartic. Enema.

Ptomaines
Botulism

{ The same as for poisonous mushrooms.
(Serum treatment for botulism. Health
Department will furnish.)

Phosphorus

(Matches, Rat or
Roach Poisons)

{ Emetic. White of egg; magnesia in large doses. (No milk or oil. They cause more absorption in these cases.)

Mercury

Calomel
Bichloride, or
Corrosive Subli-
mate

{ Emetic. Then white of egg, milk or 1 tea-
spoonful of tannin in a cup of water, or
strong tea.

Tobacco

{ Emetic. Strong green tea. Cathartic—
castor oil or Epsom salts. Keep lying down.
Artificial respiration if necessary. Keep
warm.

ADULTERATED FOODS

On account of our Pure Food Law we do not have to worry so much about adulterated foods now as we used to. The foods which are adulterated with cheaper materials simply to make a larger profit are not particularly harmful, but those that are adulterated by most any preservatives are harmful, especially for children.

PART V

THE KALORIE KIDS

FOR THE KIDDIES

ILLUSTRATED BY THE AUTHOR

THE KALORIE KIDS



1. Who are we! Who are we!
Who are we! Who?
Kalorie Kids! Kalorie Kids!
Kalorie Kids! True!



2. What are we! What are we!
What are we? Why!
WE ARE FOOD UNITS!
We Make you so spry!



THE KALORIE KIDS



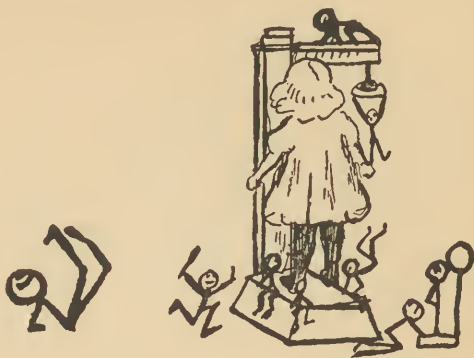
3. What do we, What do we,
What do we DO?

Make you GROW! Make you PLUMP!
Make you STRONG! HEALTHY, too!

4. *Kalorie Kids! Kalorie Kids!*
How many d'we Need?
That Depends! On your Size!
On your Age! On your Deeds!



THE KALORIE KIDS



5. To reckon how many K. Kids
For each day,
You find first of all!
How much you should Weigh!



6. A Baby so cunnin'
Must have for the Day,
Forty to fifty, per Pound!
By the Weigh!



THE KALORIE KIDS



7. And Children must have
For each Pound they should Weigh,
Thirty to forty,
K. Kids for each Day!

8. *And Mother and Dad?*
We think of Them too!
From fifteen to twenty
Of us. That will do!



THE KALORIE KIDS

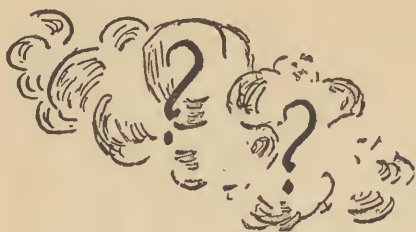


9. *How many in Bread?
Butter, Milk, Nuts and Meat?
Eggs, Cereals and Fruit?
They're all hard to beat!*

10. Ask Mother! She'll tell you.
All things she doth know!
The foods that will Nourish,
You must have to Grow!



THE KALORIE KIDS



11. *How many in Vitamins?*
So vital for Growth!
How many in Min'ral Salts?
Necessities, Both!

12. *No Kalories in Vitamins!*
No Kalories in Salts!
Oh, Kal'rie Kids! Kal'rie Kids!
We Fear you are False!



THE KALORIE KIDS



13. *Kalorie Kids! Kalorie Kids!*

What shall we do?

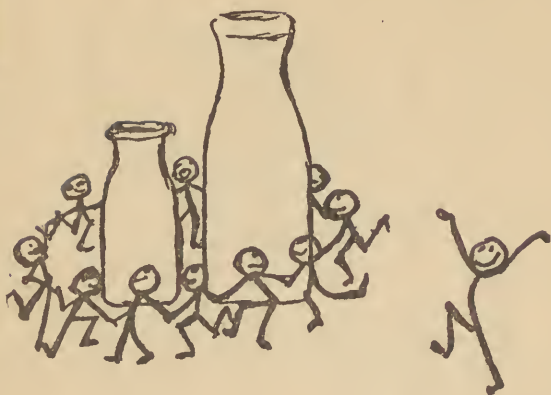
We must have the Vitamins,

Growth salts, surely, too!

14. Eat SPINACH, and CARROTS,
And CABBAGE and PEAS!
Fresh VEG'TABLES, CEREALS,
'Are Kalorie Kid Keys!



THE KALORIE KIDS

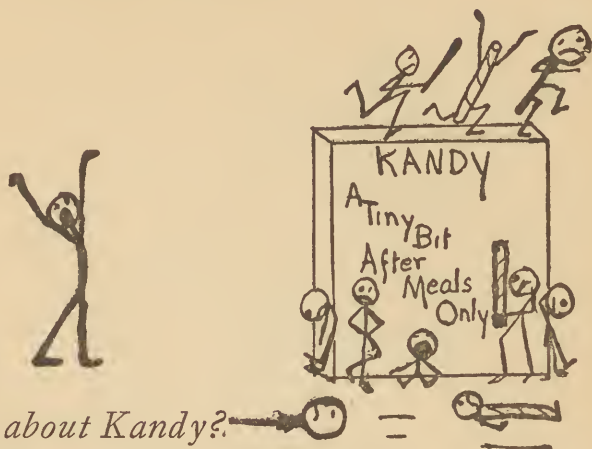


15. We unlock the Good Things,
So needful for Health!
And MILK, too! A pint or more,
Sure! You'll have Wealth!

16. WHOLE-WHEAT BREAD with
fine BUTTER,
NUTS, too, and FRESH FRUITS!
Have Vitamins! Min'ral Salts!
Kalories! Toot, Toot!



THE KALORIE KIDS



17. *How about Kandy?*

Oh, Katorie Kids, Say!

All Kalties! No Growth Salts!

Keep us away!

18. No Growth Salts, No Vitamins,
In Kandy, Child Dear!

Eat your Bread! Drink your Milk!

KANDY SHUN! You'll grow Queer!



THE KALORIE KIDS




19. *In Coffee and Tea,*
How many, Dear Kids?
NOT ANY! THEY'RE BAD, Child,
Quick, Quick! Fix the Skids!



20. For Children, especially
Tea, Coffee, are Bad!
Fresh Milk by the Pintfuls drink—
You sure won't be Sad!



THE KALORIE KIDS



21. *Kalorie Kids! Kalorie Kids!*
Perhaps we're too Fat!
You'll have to eat Less of us!
Drop us! That's that!

22. *Kalorie Kids! Kalorie Kids!*
Perhaps we're too Thin!
You'll have to eat More of us!
Good Health you Must Win!



THE KALORIE KIDS



23. *Kalorie Kids, Kalorie Kids!*

*You don't mean to say
Food Units look like you,
So Funny, So Gay?*



24. *No, Children, we're Playing!*

But Isn't it Fun?

You sure won't forget us!

You'll not from us run!

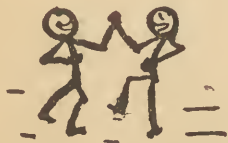


THE KALORIE KIDS



25. *Kalorie Kids! Kalorie Kids!*
We like you, we Do!
We Greet you! We EAT you!
You belong in Who's Who!

26. *We want to be HEALTHY!*
Oh, Kalorie Kids Dear!
WE'LL DO WHAT YOU TELL US!
Don't Worry! Don't Fear!



NOW, CHILDREN, GET YOUR PENCILS AND PAPER AND MAKE SOME KALORIE KIDS.

Here's his head. Front view.



Side view.



Here's his body. Front view.



Side view.



Here's his R. leg. Straight.



Bent.



Here's his L. leg. Straight.



Bent.



Here's his R. arm. Straight.



Bent.



Here's his L. arm. Straight.



Bent.



Here he is assembled.



Here he is walking.



Here he is running.



Here he is sitting.



Now see what a lot of things you can make him do.



Would you like to dress some K calorie Kids?

All right, that's easy!

First, make them in any position you want, then put clothes on them and fill them in solid so the bones won't show. You can put some flesh on the bones if you like. Just as they are going to do for you when you eat them! Isn't it Fun?



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